



DEPARTMENT OF
ELECTRICAL
ENGINEERING

THE FEED BULLETIN 2019

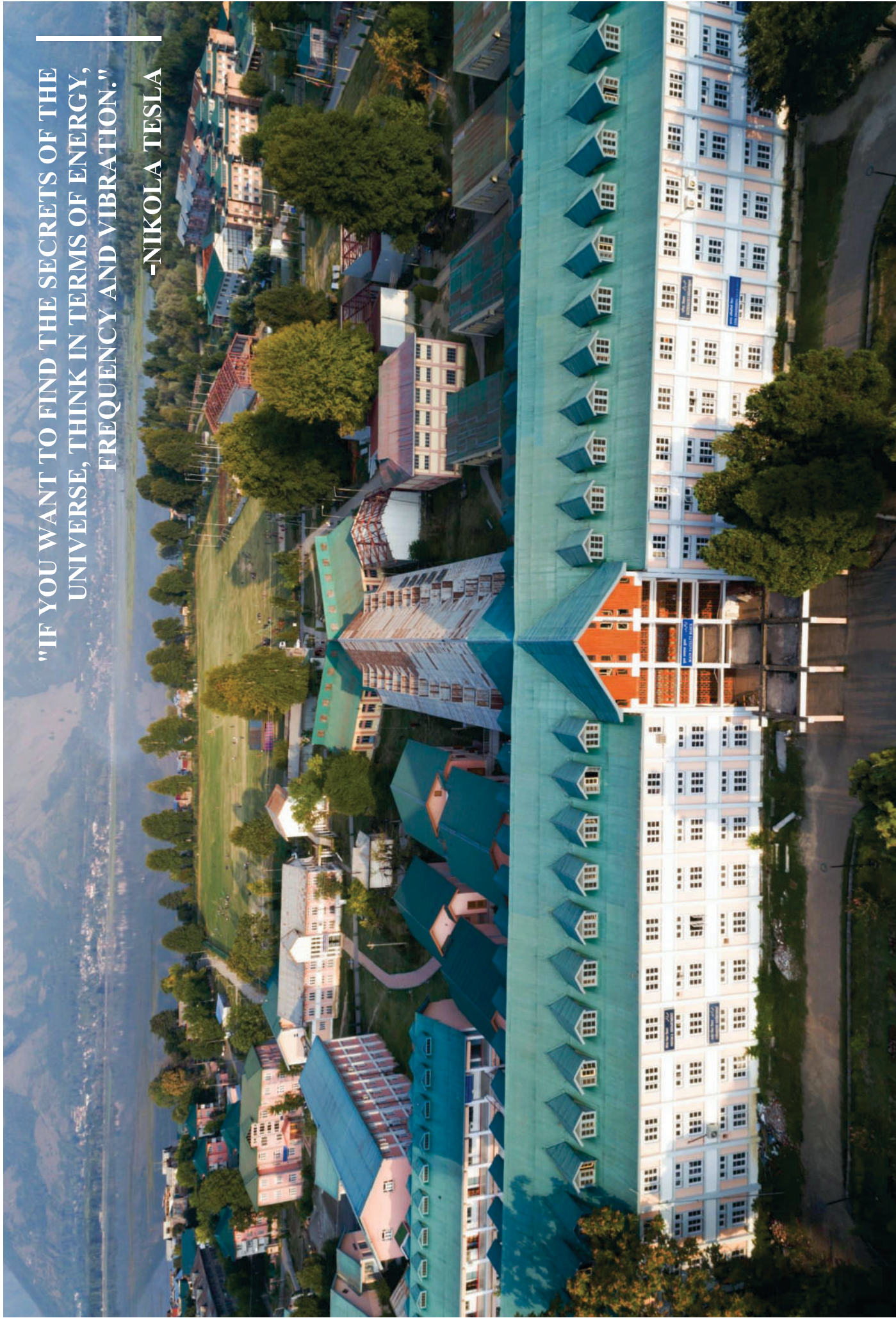
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NIT SRINAGAR
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"IF YOU WANT TO FIND THE SECRETS OF THE
UNIVERSE, THINK IN TERMS OF ENERGY,
FREQUENCY AND VIBRATION."

-NIKOLA TESLA



Photograph by- Manzoor Ahmad - Staff (EED)

Electrical Engineering Department National Institute of Technology Srinagar, J&K



VISION AND MISSION OF THE DEPARTMENT

Vision:

The Department of Electrical Engineering aims to be a frontrunner in producing globally competent technocrats who can set a benchmark in innovation and research to contribute in nation building by making a demonstrable environmental, social and economic impact.

Mission:

- M1.** To create technocrats by imparting quality education to meet industrial and societal needs.
- M2.** To provide a cordial environment that attracts and develops talent for excellence in research, innovation, and leadership.
- M3.** To inspire students to become responsible citizens and inculcate value based, socially committed professional ethics to cause of holistic development.
- M4.** To enable sustainable and cost-effective innovations, showcasing the importance of green energy technology with a focus on energy efficiency.
- M5.** To bridge the gap between academia and industries by framing appropriate curricula and syllabi.

Message

from the Hon'ble Director

“**National Institute of Technology** Srinagar is the only technical institute of national importance in the state of Jammu & Kashmir and is one of the premier technical institutes of India. The institute was one of the first eight Regional Engineering Colleges, established in 1960, by the Government of India. In 2003, the institute was upgraded to National Institute of Technology by the Ministry of Human Resource Development, Government of India, and was declared as an institute of National Importance.

We have been imparting quality technical education since the inception of the institute by focusing on technical advancements and research. The institute offers B. Tech. courses in eight different disciplines. Besides B. Tech. courses, the institute offers M. Tech. programs in Civil Engineering, Electronics & Communication Engineering, Electrical Engineering, Mechanical Engineering and Chemical Engineering and PhD programs in all the departments. The students are admitted on the basis of JEE, DASA and GATE every year. Our faculty members are actively participating in National and International Conferences and Seminars, workshops and other related research activities.

It gives me immense pleasure to mention that NIT Srinagar has been awarded "OUTSTANDING ENGINEERING INSTITUTE (NORTH)" by DAINIK BHASKAR in 2013 and "OUTSTANDING ENGINEERING INSTITUTE (NORTH)" by ABP NEWS in 2014. Department of Electrical Engineering in one of the dynamic departments. The department keeps on organizing talks, events and workshops. And now, the department is introducing the first edition of THE EED BULLETIN. The magazine is going to showcase the gems of outstanding accomplishments of this department”.



Prof. (Dr.) Rakesh Sehgal
Director, NIT Srinagar, J&K
Chief Patron of “The EED Bulletin”
Email Id: director@nitsri.net

I wish them all the best for their efforts!!

Message

from Head of the Department

Welcome to the Department of Electrical Engineering at NIT Srinagar. We started our journey in the year 1960 with Dr Russell. W. Burns as first Head of the Department. Over the last five decades, we have grown our expertise and competence in Electrical Engineering curriculum and research.

We have a strong undergraduate programme in Electrical Engineering, leading to B. Tech degree in Electrical Engineering and a postgraduate programme leading to M. Tech degree in Electrical Engineering. The sanctioned student strengths of B. Tech. are **77** at present, M. Tech. **25** and the department has around **40** Ph. D. scholars.

Our department offers science-based engineering course structure. The primary focus of our curriculum is to impart technical know-how to students, promote their problem-solving skills and facilitate innovation of new technologies. Undergraduate students are encouraged to undertake various research projects.

Our department maintains active research groups. We have research facilities to support our academic programs and research.

The department has experienced and distinguished faculty with all of them having PhD from renowned institutes. The faculty constantly engages in research apart from teaching, and regularly publishes in top international journals and conferences. There are ten laboratories in the department catering to the needs of students. I am happy that Electrical Engineering department is bringing out a Department BULLETIN. The Department Bulletin will surely help to showcase the activities that are happening in the department. I hope that this culture will continue forever.



Prof. (Dr.) A. H. Bhat
HOD, EE
Patron of "The EED Bulletin"
Email Id: bhatdee@nitsri.net

Thank you all!!

Message

from the Editorial Team

“It gives us immense pleasure to introduce our very own department Bulletin. A lot of effort has gone into the making of this issue, wherein all aspects and achievements of the department are highlighted. The bulletin includes details of all members of electrical engineering department, NIT Srinagar, activities conducted by the department and insights into the contributions of EED, NIT Srinagar. This issue is a combined effort of the editorial team, particularly the student editors. We hope that readers will enjoy reading it as much as we have enjoyed making it.



Dr. Ravi Bhushan
Assistant Professor
(Editor-in Chief)

Email Id: rbhushan@nitsri.net



Dr. Neeraj Gupta
Assistant Professor
(Associate Editor)

Email Id: neerajgupta@nitsri.net



Ms. Tabish Nazir
Trainee Teacher
Associate Editor

Email Id: tabish@nitsri.ac.in



Mr. Amit Kumar
Research Scholar
(Student Editor)

Email Id: er.amitgupta01@gmail.com



Mr. Viqar Yousuf
Research Scholar
(Student Editor)

Email Id: viqar_18phd17@nitsri.net



Mr. Roman Wani
3rd Yr., B. Tech.
(Student Editor)

Email Id: waniroman@gmail.com



Ms. Riya Baranwal
3rd Yr., B. Tech.
(Student Editor)

Email Id: ria.baranwal@gmail.com

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PLACEMENT RECORDS	18
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ACHIEVEMENTS**18**

- By Dr. SubhashKak (Our Esteemed Alumnus, 1962-1967 Batch, Electrical Engineering)
- By Dr. Neeraj Gupta (Assistant Professor, EED)
- By Dr. FarhadIlahiBakhsh (Assistant professor, EED)
- By Dr. Asadur Rahman (Assistant professor, EED)
- By Dr. Ravi Bhushan (Assistant professor, EED)

TECHNICAL ARTICLES**19**

- Role of Micro Grids in Modern Electrical Power System (*By Er. Amit Kumar*)

GLIMPSES**20-27**

- One Week Workshop on "Power Electronics: Applications in Renewable Energy Systems"
- One Week Workshop on "Introduction and Basics of Programming Skill Using MATLAB and PYTHON"
- Two-day Workshop on "Scientific and Technical Documentation Using Latex"
- One-Week Short Term Course on MATLAB, PSCAD and LaTeX
- Techvaganza 2019
- A Technical Tour of Electrical Engg. Students (Batch 2015) at Kangan Upper Sindh Hydropower Project
- Farewell to 2015 B. Tech. and 2017 M. Tech. Batch
- Group Photos of B. Tech. 2015-2019 Batch with Faculty Members, Registrar & Director
- Group Photos of M. Tech. 2017-2019 Batch with Faculty Members, Registrar & Director
- Group Photos of Ph. D. Students with Faculty Members, Registrar & Director

SOME PROUD MOMENTS**28-29**

- Dr. SubhashKak (Our Esteemed Alumnus), in 2019, Government of India awarded him with Padma Shri award.
- Typhoon HIL Award 2019
- Poster of Shubam Kumar Chaturvedi, EED (B. Tech. 2018-2022 Batch)

Faculty Members



Prof. Mairaj Ud
Din Mufti
(Professor)



Prof. Aijaz Ahmad
(Professor)



Prof. Shameem
Ahmad Lone
(Professor)



Prof. Abdul Hamid
Bhat
(Professor)



Dr. Sheikh Javed
Iqbal
(Associate Professor)



Dr. Md. Abid Bazaz
(Associate Professor)



Dr. Obbu Chandra
Sekhar
(Associate Professor)



Dr. Asadur
Rahman
(Assistant Professor)



Dr. Neeraj Gupta
(Assistant Professor)



Dr. Farhad Ilahi
Bakhsh
(Assistant Professor)



Dr. Kushal Jagtap
(Assistant Professor)



Dr. Ravi Bhushan
(Assistant Professor)



Dr. Chilaka Ranga
(Assistant Professor)



Mrs. Tabish Nazir Mir
(Teacher Trainee)



Mr. Aaqib Ali Abass
(Temporary Faculty)



Mr. Muneeb Ul Bashir
(Temporary Faculty)

Non Teaching Staff



Mr. Firdous Ahmad



Mr. Showkat
Ahmad



Mr. G. M. Dar



Mr. Md. Ismail



Mr. M. Hanief



Mr. Manzoor Ahmad



Mr. Abdul Majid



Mr. Ghulam
Rasool



Mr. Ghulam
Md. Khan



Mr. Md. Shafi



Mr. Bashir Ahmad

B. TECH. PROGRAMME

- **Program Educational Objectives (PEOs)**

- PEO1.** To imbibe analytical and professional skills in students to succeed in diverse fields.
- PEO2.** To create enthusiasts to pursue advanced education supplementing their career growth.
- PEO3.** To develop the necessary skill set for industries in students by imparting state of art technology in various areas of electrical engineering.
- PEO4.** To promote the culture of problem-solving and design skills for lifelong learning.

- **Program Outcomes (POs)**

PO1: Engineering Knowledge:

Apply the knowledge of governing sciences, mathematics and engineering principles for the solution of Electrical Engineering problems.

PO2: Problem Analysis:

Identify, analyze and solve problems related to Electrical Engineering systems.

PO3: Design/Development of solutions:

Design an electrical process to meet the desired needs within the constraints of economics, safety, and sustainability.

PO4: Conduct investigations of Complex Problems:

Ability to think independently and creatively to formulate innovative solutions to Electrical Engineering problems.

PO5: Modern tool usage:

Employ learning and skills of modern tools to analyze and design advanced Electrical Engineering processes.

PO6: The Engineer and Society:

Apply knowledge necessary to assess the impact of engineering solutions in global, environmental, safety and societal context.

PO7: Environment and Sustainability:

Competence and creativity to use engineering principles to address energy and environmental challenges.

PO8: Ethics and Professionalism:

Upholding ethical values in undertaking professional responsibilities to achieve the desired goals.

PO9: Teamwork and Leadership:

Capacity to work proficiently as a team in all-inclusiveness, and to accept the position of responsibility, accountability, and leadership, with a tolerance for ambiguity.

PO10: Communication Skills:

Articulate and interpretable communication abilities, both oral and written, to deliver and express solutions, strategies, instructions, and opinions.

PO11: Project Management and Finance:

Employ proper managerial and financial skills to the field of Electrical engineering.

PO12: Life Long Learning:

Embody an urge to pursue life-long learning, which advances the understanding of Electrical Engineering and allied areas and keep pace with the contemporary technology.

- **Program Specific Outcomes (PSOs)**

PSO1: Students shall be competent, creative and imaginative Electrical Engineers employable in fields of design, research, manufacturing, safety, quality, Technical Services.

PSO2: Students shall be able to progress through an advanced degree, certificate programs or participate in continuing education in Electrical Engineering, business, and other professionally related fields.

PSO3: Students should take lead in innovation and entrepreneurship activities with high professional standards and moral ethics and prove themselves beneficial to society at large.

M. TECH. PROGRAMME

- Branch: Electrical Power & Energy Systems (Total Seats: 25)
- Branch: Power Electronics & Electric Drives (Proposed Seats: 31)

LIST OF LABORATORIES

S. N.	Name of Laboratory	O/C & Dy. O/C	Staff
1.	Basic Electrical Engineering Lab.	O/C: Dr. M. A. Bazaz & Dy. O/C: Dr. Asadur Rahman	Mr. Mohd Ismail Wani
2.	Computation Lab.	O/C: Dr. M. A. Bazaz	Mr. Manzoor Ahmad
3.	Control Systems Lab.	O/C: Prof. M. D. Mufti Dy. O/C: Dr. M. A. Bazaz	Mr. G. M. Dar
4.	Electrical Machines Lab.	O/C: Dr. S. J. Iqbal & Dy. O/C: Dr. O. C. Sekhar	Mr. Showkat Ahmad Mistry
5.	Electrical Measurements Lab.	O/C: Prof. S. A. Lone & Dy. O/C: Dr. Ravi Bhushan	Mr. Mohd Hanief Mir
6.	High Voltage Engineering Lab.	O/C: Dr. S. J. Iqbal & Dy. O/C: Dr. Chilaka Ranga	Mr. Abdul Majid
7.	Microprocessor Lab.	O/C: Prof. A. H. Bhat & Dy. O/C: Dr. Neeraj Gupta	Mr. Mohd Hanief Mir
8.	Power Electronics Lab.	O/C: Prof. A. H. Bhat & Dy. O/C: Mrs. Tabish Nazir Mir	Mr. Manzoor Ahmad
9.	Power Systems Lab.	O/C: Prof. Aijaz Ahmad & Dy. O/C: Dr. Kushal M. Jagtap	Mr. Showkat Ahmad Mistry
10.	Virtual Instrumentation Lab.	O/C: Prof. S. A. Lone & Dy. O/C: Dr. Farhad Ilahi Bakhsh	N. A.

LIST OF PH. D. AWARDED

S. N.	Name of the Scholar	Title of Thesis	Supervisor/Co-supervisor	Date of Award
1	Dr. S. A. Lone	Fuzzy Logic Control of Stand Alone Power System	Prof. M. D. Mufti	2007
2	Dr. Sheikh Javed Iqbal	Intelligent Control of Energy Storage Devices	Prof. M. D. Mufti & Prof. S. A. Lone	2014
3	Dr. Nitin Langer	Performance Investigation of a Three-Phase Improved Power Quality Multilevel Converter	Prof. A. H. Bhat	2014
4	Dr. Soheb Hussain	Sensor-less Control of AC Drives using Advanced Estimation Techniques and Modulation Strategies	Dr. M. A. Bazaz	2016
5	Dr. Deepak Sharma	Performance Investigation of a Three-Phase Improved Power Quality Converter for Supply Side Perturbations	Prof. A. H. Bhat & Prof. Aijaz Ahmad	2018
6	Dr. Mubashir Yaqoob Zargar	Adaptive Predictive Control of Superconducting Magnetic Energy Storage System for Power Quality Improvement of a Standalone Wind-Diesel Power System	Prof. S. A. Lone & Prof. M. D. Mufti	2018
7	Dr. S. Zahid Nabi Dar	Intelligent Application of FACTS Devices in Wind Penetrated Power System	Prof. M. D. Mufti	2019

PROFESSIONAL EXPOSURES

- List of Externally Sponsored Projects: 01 (Ongoing) & 05 (Submitted)

S. N.	PI/CO-PI	Title of Project	Sponsored by	Amount	Duration	Status
1	Dr. Md. A. Bazaz (PI)	Model order reduction for fast simulation of Power electronics circuits	CPRI	7.02 Lacs	1.5 years	Ongoing
2	Dr. O. C. Sekhar (PI) & Prof. A. H. Bhat (CO-PI)	Design and development of SRM drive for PHEV with voltage boosting & ON-Board charging capabilities.	MNRE	60 Lacs	3 Years	Submitted
3	Dr. O. C. Sekhar (PI) & Prof. A. H. Bhat (CO-PI)	Advanced electrical drives labs	DST-FIST	1.10 crores	5 Years	Submitted
4	Dr. N. Gupta (PI)	A stochastic comprehensive analysis of micro grid with large penetration of EV and optimal storage.	SERB	22.89 Lacs	2 Years	Submitted
5	Dr. F. I. Bakhsh (PI) & Prof. A. H. Bhat (CO-PI)	Application of variable frequency transformer (VFT) for rural electrification.	SERB	67.23 Lacs	3 Years	Submitted
6	Dr. C. Ranga (PI) & Prof. A. H. Bhat (CO-PI)	Performance Evaluation and Condition Monitoring of Power Transformer.	CSIR	23.78 Lacs	3 Years	Submitted

- List of Workshop/STC/Conference Conducted: 04

S. N.	Date	Activity	Name of Coordinators/Convenors	Sponsored by	Department/Institute/Industry
1	22-26 April' 2019	One week Workshop on "Power Electronics: Applications in Renewable Energy Systems"	Dr. Farhad Ilahi Bakhsh & Dr. Asadur Rahman	TEQIP-III	EED/NIT Srinagar
2	27-31 May' 2019	One week STC on "Introduction and Basics of Programming skill using MATLAB and PYTHON"	Dr. Kushal M. Jagtap & Prof. Aijaz Ahmad	TEQIP-III	EED/NIT Srinagar
3	8-9 June' 2019	Two day Workshop on "Scientific and Technical Documentation using LaTeX"	Dr. Mohammad Abid Bazaz	TEQIP-III	EED/NIT Srinagar
4	24-28 June' 2019	One week STC on "Introduction to MATLAB, PSACD and LaTeX for Researchers"	Prof. A. H. Bhat; Dr. Neeraj Gupta & Dr. Ravi Bhushan	TEQIP-III	EED/NIT Srinagar

• **List of Books/(Book Chapters): 03**

S. N.	Author's name	Title of Chapter	Name of book	Publication details
1	N. Daratha; I. Agustian; D. Suryadi; A. Suandi and Neeraj Gupta	Development of Low-Cost Wind Power Estimation System in Enggano Island Indonesia	Lecture Notes in Mechanical Engineering; Advances in Interdisciplinary Engineering	Springer Year: June 2019
2	S. Islam, Farhad Ilahi Bakhsh and Q. Ul Islam	Modeling and Analysis of the Photovoltaic Array Feeding a SPWM Inverter	Advances in Intelligent Systems and Computing, Applications of Artificial Intelligence Techniques in Engineering	Springer; Vol. 698; Year: 2019
3	S. Hussain & M. Abid Bazaz	Adaptive Neural Type II Fuzzy Logic-Based Speed Control of Induction Motor Drive	Ambient Communications and Computer Systems	Springer; Vol. 696; Year: March 2018

• **List of Papers Published in Conferences: 12**

S. N.	Author(s)	Title of Paper	Name of the Conference	Date & Year
1	Hadhiq Khan, M. A. Bazaz, Shahkar Ahmad Nahvi	Accelerated Simulation Across Multiple Resolutions for Power Electronic Circuits	2019 Fifth Indian Control Conference (ICC)	Jan 2019
2	Tabish Nazir Mir, Bhim Singh, Abdul Hamid Bhat	New Modulation Methods for Single Phase to Three Phase Matrix Converters	2018 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES)	Dec 2018
3	S. Singh, M. A. Bazaz, and S. A. Nahvi	Model Order Reduction of Two Area Electric Power System	International Conference on Computing, Communication and Automation (ICCCA) 2018	Dec 2018
4.	Hadhiq Khan, M. Abid Bazaz, Shahkar Ahmad Nahvi	Reduced Order Modeling of Ring Oscillator System with POD-DEIM	2018 4th International Conference on Computing Communication and Automation (ICCCA)	Dec 2018
5	Neeraj Gupta	Probabilistic optimal reactive power planning with wind generation	IEEE Power Electronics, Drives and Energy Systems Conference, IIT Madras	Dec 2018
6	Viqar Yousuf & Aijaz Ahmad	A control strategy for STATCOM in Alleviation of subsynchronous Resonance in power systems	2nd IEEE International Conference on Power Electronics, Intelligent Control and Energy Systems	Oct 2018
7	Mukul Chanakya & Aijaz Ahmad	Grid tied hybrid photovoltaic fuel cell power system for residential load	2nd IEEE International Conference on Power Electronics, Intelligent Control and Energy Systems	Oct 2018
8	Neetan Sharma, Farhad Ilahi Bakhsh, Shivinder Mehta	Efficiency Enhancement of a Solar Power Plant Using Maximum Power Point Tracking Techniques	2018 International Conference on Computational and Characterization	Sept 2018

			Techniques in Engineering & Sciences (CCTES)	
9	Shoeb Hussain, Hadhiq Khan, M.Abid Bazaz	Neural Network Observer for Sensorless Direct Torque Controlled Induction Motor Drive	2018 International Conference on Power Energy, Environment and Intelligent Control (PEEIC)	April 2018
10	Tabish Nazir Mir, Bhim Singh & Abdul Hamid Bhat	Low speed sensorless model predictive current control of a three phase induction motor from a single phase supply	IEEMA Engineer Infinite Conference	Mar 2018
11	Sonaxi Bhagawan Raikar , Kushal Manoharrao Jagtap	Role Of Deregulation In Power Sector And Its Status In India	2018 National Power Engineering Conference (NPEC)	Mar 2018
12	Kushal Manoharrao Jagtap , Dheeraj Kumar Khatod	Current summation based approach for loss allocation with distributed generation	2018 International Conference on Power, Instrumentation, Control and Computing (PICC)	Jan 2018
13	Hadhiq Khan, M. Abid Bazaz, Shahkar Ahmad Nahvi	Accelerated Simulation of a High-Fidelity DC-DC Buck-Boost Converter Using Model Order Reduction	IEEE Indian Control Conference (ICC)	Jan 2018

• **List of Papers Published in Journals: 48**

S. N.	Author(s)	Title of Paper	Name of the Journal	Vol. & Year
1	Aaqib Ali Abass, Mairaj Ud-Din Mufti	SimPower-based analysis and design of a hybrid wind–diesel–superconducting magnetic energy storage system for simultaneous frequency and voltage control	Wind Engineering	43, 2019
2	Saira Manzoor, Mairaj Ud-Din Mufti	Improved frequency control of a micro-grid with a genetically tuned fuzzy controlled super-capacitor system	International Journal of Industrial Electronics and Drives	4, 2019
3	Hailiya Ahsan, Mairaj Ud-Din Mufti	Dynamic performance improvement of a hybrid multimachine system using a flywheel energy storage system	Wind Engineering	2019
4	Deepak Sharma, Abdul Hamid Bhat & Aijaz Ahmad	Neural Network Based Three-Phase NPC Rectifier for DC Bus Capacitor Voltage Balancing Under Perturbed Mains Supply Conditions	International Journal of Power Electronics	10, 2019
5	Tabish Nazir Mir, Bhim Singh & Abdul Hamid Bhat	Predictive Delta Sigma Modulation for Three-Phase to Three-Phase Matrix Converters	IEEE Transactions on Power Electronics	35, 2019
6	Anupam Kumar, Abdul Hamid Bhat & Pramod Agarwal	A single phase shift based Isolated Bidirectional DC-DC Converter for bidirectional energy transfer in DC-Microgrid with identification of optimum operating zone	International Journal of Industrial Electronics & Drives	5, 2019
7	Shubhendra Pratap Singh, Abdul Hamid Bhat & Arfat Firdous	A Novel Reduced-Rule Fuzzy Logic Based Self-Supported Dynamic Voltage Restorer for Mitigating Diverse Power Quality Problems	International Journal of Electrical Engineering and Informatics	11, 2019

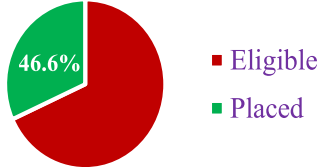
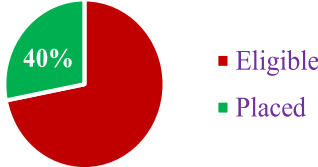
8	Anupam Kumar, Abdul Hamid Bhat & Pramod Agarwal	Reduced Rule Based Fuzzy Logic Controlled Isolated Bidirectional Converter Operating in Extended Phase Shift Control for Bidirectional Energy Transfer	International Journal of Electrical and Computer Engineering	13, 2019
9	Ehsanul Haque Peerzadah, Inderpreet Kaur & Abdul Hamid Bhat	Overview of Smart Home and Building Automation Systems using a Correlative Demand Response	Journal of Emerging Technologies and Innovative Research (JETIR)	6, 2019
10	Shoeb Hussain, M. Abid Bazaz	Modified SVPWM Technique for a Sensorless Controlled Induction Motor Drive using Neural Network Observer and Predictive Controller	Int. J. of Advanced Intelligence Paradigms	10, 2019
11	B. N. Reddy, O. C. Sekhar & M. Ramamoorthy	Implementation of zero current switch turn-ON based buck-boost-buck type rectifier for low power applications	International Journal of Electronics	106, 2019
12	B. N. Reddy, A. Pandian, OC. Sekhar, M. Rammoorthy	Performance and dynamic analysis of single switch AC-DC buck-boost buck converter	International Journal of Innovative Technology and Exploring Engineering (IJITEE)	8, 2019
13	B. N. Reddy, A. Pandian, OC. Sekhar, M. Rammoorthy	Design of non-isolated integrated type AC-DC converter with extended voltage gain and high power factor for Class-C&D applications	International Journal of Recent Technology and Engineering (IJRTE)	7, 2019
14	M. Bharathi, M. K. Kumar, O. C. Sekhar & M. Rammoorthy	A review of recent advancements in flux reversal permanent magnet machine (FRPMM)	International Journal of Recent Technology and Engineering (IJRTE)	7, 2019
15	Venu gopal Reddy Bodha, O Chandra Sekhar & A. Srujana	Power Quality Enhancement by MPC based Multi-level Control Employed with Improved Particle Swarm Optimized Selective Harmonic Elimination	Energy Sources, Part A: Recovery, Utilization, and Environmental Effects	41, 2019
16	Venu gopal Reddy Bodha, A. Srujana & O. C. Sekhar	Amplifying power quality and diminishing harmonic distortion in mg via adaptive mpc based robust ekf through ipso-she	International journal of power electronics	2019
17	Qamar Ul Islam and Farhad Ilahi Bakhsh	Generation of Firing Pulse for TRIAC using PIC 16F877A Microcontroller	Journal of emerging technologies and innovative research	2019
18	A. Prakash, S. Murali, R. Shankar & Ravi Bhushan	HVDC tie-link modeling for restructured AGC using a novel fractional order cascade controller	Electric Power Systems Research (Elsevier)	170, 2019
19	Chilaka Ranga & Ashwani Kumar	Influence of Accelerated Thermal Aging on Performance of Alternative Solid Dielectrics for Power Transformers	Insight Non-Destructive Testing and Condition Monitoring (The Journal of The British Institute of Non-Destructive Testing)	61, 2019
20	Chilaka Ranga, Ashwani Kumar & Rajeevan Chandel	Influence of Electrical and Thermal Ageing on the Mineral Insulating Oil Performance for Power Transformer Applications	Insight Non-Destructive Testing and Condition Monitoring (The Journal of The British Institute of Non-Destructive Testing)	2019
21	S. Zahid Nabi Dar, Mairaj Ud-Din Mufti	Improved load frequency characteristics with genetically tuned supercapacitor energy storage in interconnected power system	International Journal of Industrial Electronics and Drives	4, 2018

22	S. Zahid Nabi Dar, Mairaj Ud-Din Mufti	Integrating a superconducting magnetic energy storage system for intelligent control of LFC characteristic in multi-area power system	International Journal of Industrial Electronics and Drives	4, 2018
23	Asima Syed; Mairaj-ud-din Mufti	Automatic generation control of a wind embedded two-area power system, interconnected through AC/DC transmission system	International Journal of Industrial Electronics and Drives	4, 2018
24	Adil Mohiudin, Mairaj-ud-din Mufti	Transient stability enhancement of a multi-machine electric power system using an adaptive-predictive wide-area damping controller	International Journal of Industrial Electronics and Drives	4, 2018
25	Meenakshi Rastogi, Abdul Hamid Bhat & Aijaz Ahmad	Power Quality Improvement of Utility-Distribution System using Self-Supported DSTATCOM based on Unit Template based Control Algorithm in PFC and ZVR Modes	Advanced Research in Electrical and Electronics Engineering	5, 2018
26	Deepak Sharma, A. H. Bhat, Aijaz Ahmad & Nitin Langer	Capacitor voltage balancing in neutral-point clamped rectifier using modified modulation index technique	International Journal of Computers and Electrical Engineering (Elsevier)	70, 2018
27	Deepak Sharma, A. H. Bhat & Aijaz Ahmad	Optimising the performance of three-phase neutral point clamped rectifier under disturbed AC mains	Int. J. Power Electronics	9, 2018
28	Aijaz Ahmad & Viqar Yousuf	Sub-Synchronous Resonance Alleviation in Power System using Facts Devices	International Journal of Industrial Electronics and Electrical Engineering	16, 2018
29	Anupam Kumar, Abdul Hamid Bhat and Pramod Agarwal	Back Flow Power Analysis and Identification of Optimum Operating Zone of Single Phase Shift and External Phase Shift Control Modes in Dual Active Bridge Converter	Advanced Research in Electrical and Electronics Engineering	5, 2018
30	Shubhendra Pratap Singh & Abdul Hamid Bhat	Adaline-Based Control of Self Supported DVR for Mitigation of Various Source Side Power Quality Problems	Advanced Research in Electrical and Electronics Engineering	5, 2018
31	Humeera Altaf and Abdul Hamid Bhat	Power Quality Improvement using three-phase, three-wire Self-supported DVR Based on SRF-theory	Advanced Research in Electrical and Electronics Engineering	5, 2018
32	Amit Kumar; Dr. Abdul Hamid Bhat	Power quality improvement in hybrid filter using fuzzy logic controller	Int. J. Industrial Electronics and Drives	4, 2018
33	Meenakshi Rastogi,; Abdul Hamid Bhat	Simultaneous active and reactive power compensation using STATCOM with super capacitor energy storage system	Int. J. Industrial Electronics and Drives	4, 2018
34	Tabish Nazir Mir, Bhim Singh, Abdul Hamid Bhat	Constant Switching Frequency DTC for Matrix Converter Fed Speed Sensorless Induction Motor Drive	Journal of The Institution of Engineers (India, Springer): Series B	99, 2018
35	Tabish Nazir Mir, Bhim Singh, Abdul Hamid Bhat	Speed-Sensorless DTC of a Matrix Converter Fed Induction Motor using an Adaptive Flux Observer	IETE Journal of Research, Taylor and Francis	2018
36	Shubhendra Pratap Singh & Abdul Hamid Bhat	Design and Performance Evaluation of Self-Supported Dynamic Voltage Restorer For Mitigating Various Power Quality Problems	Int. J. Power Electronics	2018

37	Abdul Hamid Bhat, Anupam Kumar	A current source inverter-based unified power quality conditioner for mitigation of voltage and current harmonics	Int. J. Industrial Electronics and Drives	4, 2018
38	S. P. Singh, A. H. Bhat	PLL-Less Adaline-Based Control of self-Supported DVR for Grid Voltage Distortion and Imbalances	Journal of Electrical Engineering	2018
39	Anupam Kumar, A. H. Bhat & Pramod Agarwal	Review and comparative analysis of dual active bridge isolated DC to DC converter with different control techniques	Int. J. Industrial Electronics and Drives	4, 2018
40	Hadhiq Khan, M. A. Bazaz, S. A. Nahvi	Simulation acceleration of high-fidelity nonlinear power electronic circuits using model order reduction	International Federation of Automatic Control	51, 2018
41	S. Singh, M. A. Bazaz, and S. A. Nahvi	A scheme for comprehensive computational cost reduction in proper orthogonal decomposition	Journal of Electrical Engineering	69, 2018
42	V. G. R. Bodha, A. Srujana & O. C. Sekhar	A modified H-bridge voltage source converter with Fault Ride Capability	Elsevier Energy journal	165, 2018
43	Neeraj Gupta	Gauss Quadrature Based probabilistic Load Flow Method with voltage dependent loads including WTGS, PV and EV charging uncertainties	IEEE Transactions on Industry Applications	54, 2018
44	Neeraj Gupta	Stochastic optimal reactive power planning and active power dispatch with large penetration of wind generation	Journal of renewable and sustainable energy	10, 2018
45	M. Tabrez, Farhad Ilahi Bakhsh, M. Hassan, K. Shamganth & S. Al-Ghnmimi	A comparative simulation study of different sensorless permanent magnet synchronous motor drives using neural network and fuzzy logic	Journal of Intelligent and Fuzzy Systems, IOS Press	35, 2018
46	Md Ibrahim , M A Mallick M Usama Kidwai , Farhad Illahi Bakhsh	Energy Management of a SPV System for ICT Application- A Case study	International Journal of Research	7, 2018
47	Shivinder Mehta Farhad Ilahi Bakhsh Neetan Sharma	Efficient Energy Management and Grid Interconnection of solar PV System	International Journal of Engineering and Technology	7, 2018
48	D. Kumar, Ravi Bhushan & K. Chatterjee	Improving the dynamic response of frequency and power in a wind integrated power system by optimal design of compensated superconducting magnetic energy storage	International Journal of Green Energy	15, 2018

- **No. of Special Lectures Conducted: 20**
- **No. of Outreach Activities: 15**
- **No. of Courses Attended: 26**
- **No. of Industry-Institute Interaction: 01**
- **No. of Ph. D. Students Registered: 06**

PLACEMENT RECORDS

2014-2018 Batch		2015-2019 Batch	
Total Students: 73 Eligible Students: 58 Total Students Placed: 27 %age Placement: 46.6	2014-2018 Batch  <ul style="list-style-type: none"> ■ Eligible ■ Placed 	Total Students: 72 Eligible Students: 55 Total Students Placed: 22 %age Placement: 40	2015-2019 Batch  <ul style="list-style-type: none"> ■ Eligible ■ Placed

ACHIEVEMENTS

- **Dr. Subhash Kak** (Our Esteemed Alumnus, 1962-1967 Batch, Electrical Engineering), in 2019, Government of India awarded him with “*Padma Shri award*”. On 28 August 2018, he was also appointed member of “*Indian Prime Minister’s Science, Technology and Innovation Advisory Council (PM-STIAC)*”.
- **Dr. Neeraj Gupta** (Assistant Professor, EED) has been elected to the grade of “*Senior Member IEEE (USA)*” on dated 16th Feb, 2019.
- **Dr. Farhad Ilahi Bakhsh** (Assistant professor, EED) with his team of 29 students from Electrical Engineering Department have won “*10 for 10 Typhoon HIL Award*” from Switzerland, Europe on April 08, 2019.
- **Dr. Farhad Ilahi Bakhsh** (Assistant professor, EED) started the “*IEEE Students Chapter*” (Reference#:190717-000730) as a Counselor.
- **Dr. Asadur Rahman** (Assistant professor, EED) established the “*EED Student Club*” as a Faculty Coordinator.
- **Dr. Ravi Bhushan** (Assistant professor, EED) started the departmental magazine “*THE EED BULLETIN*” as an Editor-In Chief.

TECHNICAL ARTICLES



Role of Micro Grids in Modern Electrical Power System

The need for new electricity production has grown dramatically due to increasing population and wealth, more electric cars, new desalination plants, more electric gadgets for domestic and commercial use and the closing of nuclear power plants (over 300 of the 443 nuclear power plants and the 25 under construction around the world in 2005 will be decommissioned by 2020).

Coal and natural gas still produces the majority of our electricity today but these power plants emit lot of pollutants which are carcinogenic; therefore, treatment of these gases is to be done with extreme care also. The burnt residue of fuel (Fly ash, bottom ash etc.) must be treated with due care because when inhaled, result in lungs related and several other diseases. So, this is a transition time to migrate from conventional thermal power generation to environmental friendly clean

power generation. The alternatives in the form of solar, wind, and biomass are increasing which falls under the category of distributed generation with sufficient energy storage facilities [1].

The IEEE defines distributed generation (DG) as the generation of electricity by facilities that are sufficiently smaller than central generating plants, so as to allow interconnection or can work as in an islanded mode at nearly any point in a power system [2].

Micro grids (MGs) are becoming important concepts to integrate various DGs and energy-storage systems. The concept has been emerging to cope with the generation of renewable-energy systems which can be realistic if the final user is able to generate, store, control, and also consider the management part in distribution of the energy that it will consume. This change of paradigm allows the final user to be not only a consumer but also a part of the grid [3]. Traditionally, integration of multiple distributed generation sources to the grid is very complicated, expensive and laborious task. As rooftop solar panels start getting used widely now a day, electricity distribution companies of India (DISCOMs) have to supply less and less power to homes. This would reduce the subsidy that government need to provide to the domestic sector and will help them break even more easily. Healthy DISCOMs can then expand their grid network to most homes faster to ensure that no home remains dark. India seems to be stuck in this logjam as power cannot be generated at much lower costs, even though it depends on environment-unfriendly coal-fired power plants. A solar-dc micro grid could help in breaking the logjam that the domestic power supply currently faces in India [4]. Distributed generation units depend on renewable energy needs a conversion system to tie into the AC grid. Very often this AC power is reconverted again into DC for many end users. In fact, all the electronic devices, such as computers, florescent lights, variable speed drives and many other household and business appliances and equipment, need DC supply, hence all of these DC devices require conversion of the building's AC power into DC and this conversion is typically made by inefficient rectifiers. The power losses of these multiple conversions could be reduced using DC micro grids, i.e., DC grids within the buildings or group of several buildings. In this type of micro grid, AC mains power is converted to DC using an efficient rectifier; the DC network then supplies power to DC equipment connected to the DC network itself. Potentially, a DC micro grid can reduce AC to DC conversion losses from an average of 32% to 10%. The future of MGs also provides a suitable platform for country's prosperity, competitiveness, and innovation in a global clean energy economy [5].

[1] 2020 Global Energy Scenarios. Millennium Project; United Nations University: Tokyo, Japan 2008.

[2] IEEE, Institute of Electrical and Electronics Engineers, <http://www.ieee.org>.

[3] J. M. Guerrero, J. C. Vasquez, J. Matas, L. G. de Vicuna and M. Castilla, "Hierarchical Control of Droop-Controlled AC and DC Microgrids—A General Approach Toward Standardization," in *IEEE Transactions on Industrial Electronics*, vol. 58, no. 1, pp. 158-172, Jan. 2011.

[4] A. Jhunjhunwala, A. Lolla and P. Kaur, "Solar-dc Microgrid for Indian Homes: A Transforming Power Scenario," in *IEEE Electrification Magazine*, vol. 4, no. 2, pp. 10-19, June 2016.

[5] Rizzo, R.; Tricoli, P.; Spina, I. "An innovative reconfigurable integrated converter topology suitable for distributed generation," *Energies* 2012, 5, 3640–3654.

GLIMPSES

- One Week Workshop on "Power Electronics: Applications in Renewable Energy Systems":



- One Week Workshop on "Introduction and Basics of Programming Skill Using MATLAB and PYTHON":



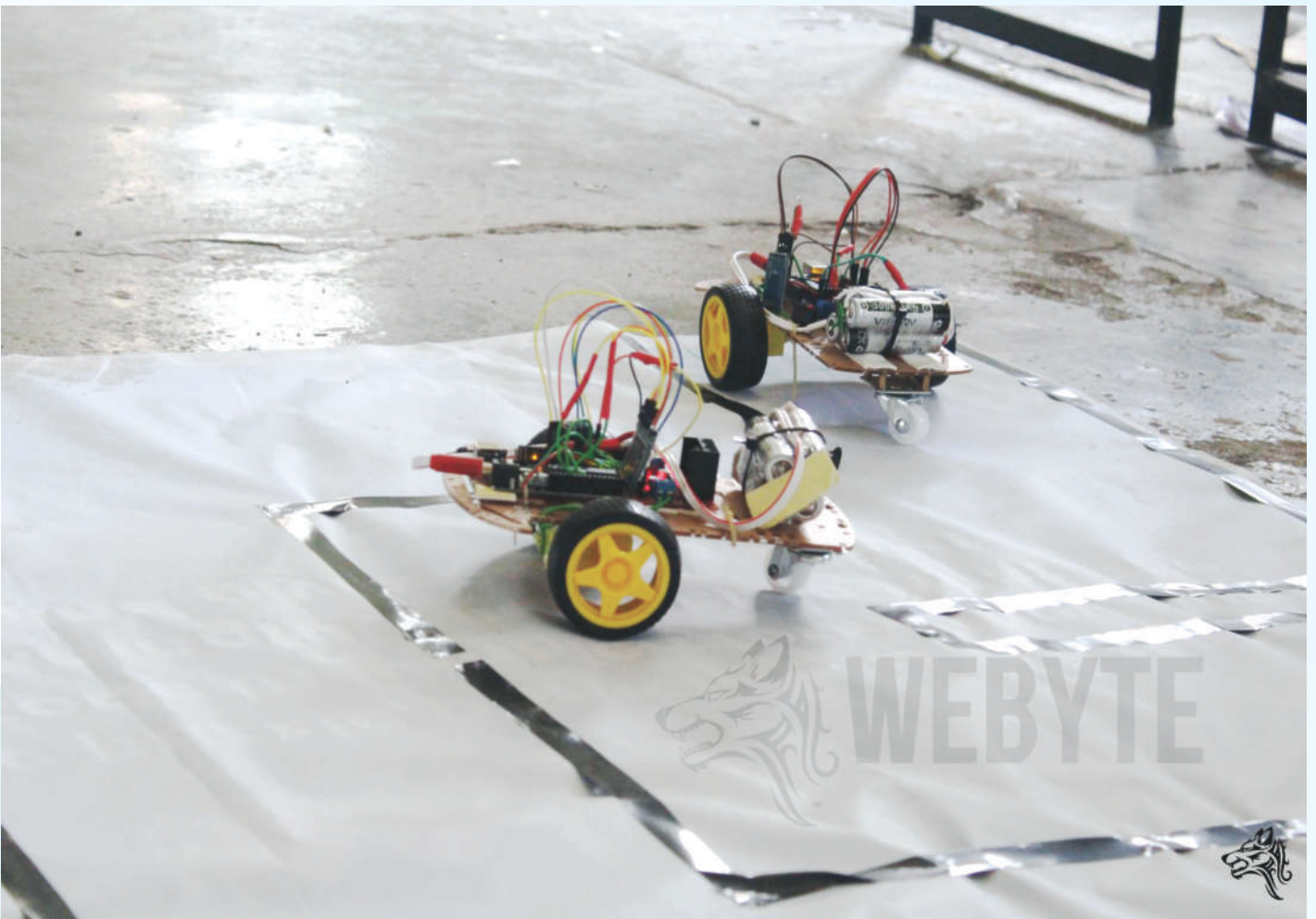
- Two-day Workshop on “Scientific and Technical Documentation Using Latex”:



- One-Week Short Term Course on MATLAB, PSCAD and LaTeX:



- Techvaganza 2019:



- A Technical Tour of Electrical Engg. Students (Batch 2015) at Kangan Upper Sindh Hydropower Project:



Farewell to 2015 B. Tech. and 2017 M. Tech. Batch:



- Group Photos of B. Tech. 2015-2019 Batch with Faculty Members, Registrar & Director:



- Group Photos of M. Tech. 2017-2019 Batch with Faculty Members, Registrar & Director:



- Group Photos of Ph. D. Students with Faculty Members, Registrar & Director:



SOME PROUD MOMENTS



- *Dr. Subhash Kak (Our Esteemed Alumnus), in 2019, Government of India awarded him with Padma Shri Award.*

- Typhoon HIL Award 2019 (This is a matter of pride that **Dr. Farhad Ilahi Bakhsh**, Assistant Professor, Electrical Engineering Department with his



team of 29 students from Electrical Engineering Department have won **“10 for 10 Typhoon HIL Award”** from Switzerland, Europe and brings laurels to the Institute. The team have been led by **Ms. Raiya Rureshi** and **Ms. Jasira Jabeen**, both have worked very hard with Dr. Farhad for winning the award. **NIT Srinagar** is being among 22 Institutions worldwide who have won this award up till now.

- **Shubam Kumar Chaturvedi, EED (B. Tech. 2018-2022 Batch) (Yuwa Innovators):**





Yuwa Innovators
Presents



Food Grain Washer and Water Purifier Machine

THE MACHINE

Large amount of pure water is wasted in our kitchens for washing food grains, lentils, rice and other eatable items. On an average, about 95 million gallons of water is consumed every year from about 10 lakh Indian kitchens for this purpose. This machine, “food grain washer and water purifier” not only effectively wash, but save about 70% water used for washing such items. The used water is subsequently recycled for drinking purpose, thus enhancing the savings.

USES OF THE MACHINE

- WINNOWING OF FOOD GRAINS BEFORE COOKING
- WASHING OF FOOD GRAINS
- PURIFICATION OF USED WATER
- PURIFICATION OF TAP WATER OR WATER FROM OTHER SOURCE
- SIEVING OF WHEAT FLOUR

BENEFITS

- SAVE WATER
- SAVE TIME WHILE WAHING FOOD GRAINS
- NO NEED OF EXTRA WATER PURIFIRE
- SAVE ELECTRICITY
- MULTIFUNCTIONING, MULTIPURPOSE MACHINE FOR OUR KITCHEN.





SHUBHAM KUMAR CHATURVEDI
STUDENT, ELECTRICAL
ENGINEERING (2018-2022)
NIT SRINAGAR
INNOVATOR



DR. SAAD PARVEZ
HEAD, IIED CENTRE,
NIT SRINAGAR
MENTOR

