Electrical World of
N.I.T.T.T.R, Chandigarh

BUZZ

Second Edition
2015-2016
Electrical Department

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TEAMING TOGETHER

NITTTR

National Institute of Technical Teachers Training and Reasearch, Chandigarh

The Electrical world of NITTTR, Chandigarh
E BUZZ
Edition II, 2015-16 Electrical

From the Director

It gives me immense pleasure to know that the department of Electrical Engineering, NITTTR, Chandigarh is bringing out a departmental newsletter for the academic year 2016. This newsletter gives the students opportunity not only to provide articles of interest on technical topics but to help keep the readers informed of recent news and upcoming technologies being developed at our institution. The department newsletter provides a platform for exposing the merits and academic achievements of the faculty and students. I hope that this culture of releasing newsletter continues forever and becomes a coated example for others to follow. I congratulate the faculty and the students for their effort to achieve excellence and wish them all the best for their future.

Dr. M P Poonia
Director,
NITTTR, Chandigarh

From the Head of Department

We are delighted to launch our second edition of the EE Students' Newsletter. This newsletter is a testament of the department's commitment in imparting quality education in academia. This encompasses a right balance between research & development and teaching & learning and very much in line with the vision and mission of NITTTR Chandigarh. This newsletter highlights many latest wonderful achievements that have brought laurels to the department both by students and staff. This newsletter will provide a glimpse of our student achievements during the period 2015-2016.The true education should deepen our insight, widen our horizon and create a meaningful outlook. Equally the students are fortunate enough to have born in a free nation, with all the facilities to shape their career in such a way, that they should be part of a good and healthy society with progressive attitude towards divinity.

Dr. Lini Mathew
HOD,
EE Department

There is no elevator to success, you have to take stairs.

Inventions around the world

Transparent Smartphones

Inventors, Jung Won Seo, Jae-Woo Park, Keong Su Lim, Ji-Hwan Yang and Sang Jung Kang, scientists at the Korean Advanced Institute of Science and Technology, have created the world's first transparent computer chip. The chip, known as (TRRAM) or transparent resistive random access memory, is similar to existing chips known as (CMOS) or metal-oxide semiconductor memory. By integrating TRRAM with other transparent electronic components, we can create total see-through embedded electronic systems. The technology could enable the windows or mirrors in your home to be used as computer monitors and television screens. This technology is expected to be available within 3 to 4 years.

Source: www.kaist.edu

Worlds Fastest Motor

A new motor developed by researchers at ETH Zurich's Department of Power Electronics and marketed by the Swiss company, Celeroton, can spin in excess of 1 million revolutions per minute. As a comparison, collapsed stars spin at 60,000 rpms, a blender at about 30,000 and high performance engines at around 10,000 rpms. The matchbook-sized motor has a titanium shell, ultra-thin wiring and a trade secret iron formulated cylinder. The need for smaller electronic devices requires smaller holes, which means smaller, faster, more efficient drills.

Source: celeroton.com

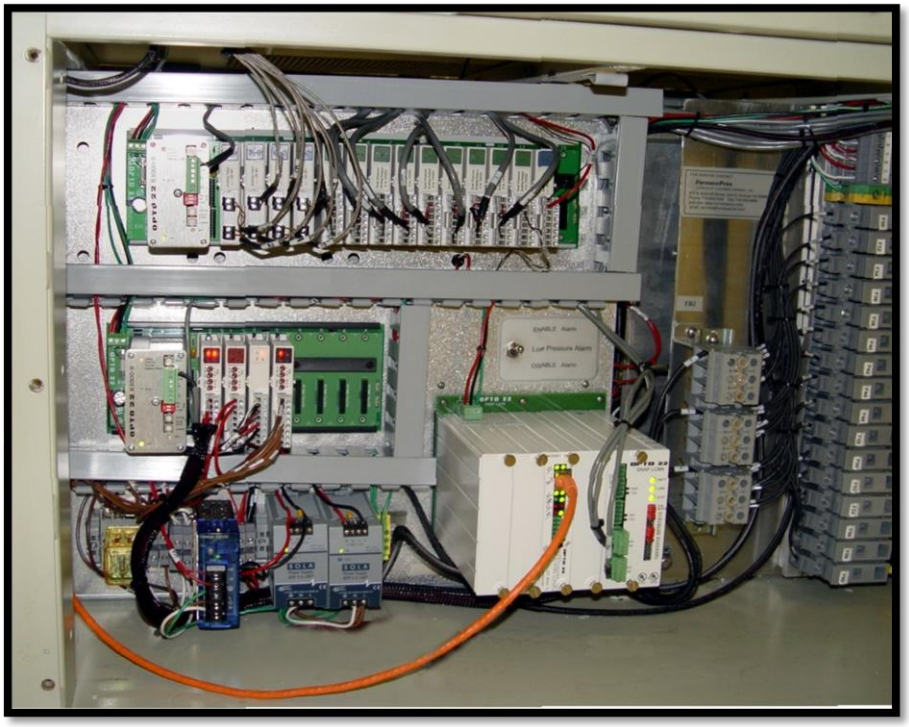
Smart Textile converts body movements into Power Source

Scientists in China and the United States have demonstrated how a glove-size piece of the "smart textile" could continuously power an electronic watch or charge a mobile phone using ambient sunlight and gentle body movements. These fibers are then woven together along with wool on high-throughput commercial weaving equipment to create a textile just 0.01 inches (0.32 millimeters) thick. They coated polymer fibers with various materials to create cable-like solar cells that generate electricity from sunlight and also so-called turboelectric nano generators (TENG).The TENGs rely on the turboelectric effect, by which certain materials become when rubbed against another type of material. When the materials are in contact, electrons flow from one to the other, but when the materials are separated, the one receiving electrons will hold a charge. If these two materials are then connected by a circuit a small current will flow to equalize the charges. By continuously repeating the process, an alternating electrical current can be produced to generate power.

"Life is 10% what happens to us and 90% how we react to it."
– Dennis P. Kimbro

Workshop

A workshop on 'PLC particles' was organized by Scientech Technologies Pvt Ltd. From 3rd August to 7th August 2015 under the leadership of Dr. Ritula Thakur. In this workshop the students were told about the basics of PLC to the real time hands on experience on PLC. The ladder logic programming of PLC on WinPro software was taught to students by Mr. Aditya Kumar Dubey from Scientech Technologies Pvt Ltd, Indore.



Industrial Visit

A industrial visit was organized for the students to Indosaw (Osaw Industrial Products Pvt. Ltd) Ambala,Haryana. It is recognized as one of the prominent names for manufacturing and supplying wide range of qualitative Scientific Laboratory Equipment's. This tour was organized under the leadership of Dr. Poonam Syal on 25th August 2015.

Advice is what we ask for when we already know the answer but we wish we didn't -Erica Jong

Workshop

A Faculty and Student workshop was organized on OPAL-RT during 23rd May to 27th May 2016 at NITTTR, Chandigarh by Mr. Sameer Singh from OPAL-RT Technologies India Pvt Ltd,Banglore . OPAL-RT is a cost effective real time simulator. OPAL-RT can be used for rapid prototyping and real-time hardware-in-the-loop (HIL) simulation systems, optimized to execute Simulink and State flow models.

Facts About Motors

1. The world's smallest electric motor was announced in 2011, measuring one nanometer (a billionth of a meter or 1/60,000 the width of a human hair) across and consisting of a single molecule. Source: gibbsonsgroup.co.uk

2. The most usual construction of a Direct Current motor is a cylinder. The style of construction, though, is very short and fat. Source: All about Circuits

3. The dc motor or the Direct current motor has a split ring commutator which maintains the direction of the flow of current. Source: Yahoo

4. The construction of dc motor goes in reverse fashion as compared to that of an ordinary motor.

Technical Events

Workshop

A workshop on "Circuit Designing" in collaboration with Design Spark was organized during 3rd February and 4th February 2016 under the guidance of Dr. Ritula Thakur. In this workshop the participants were taught the use of DesignSpark PCB 7.0 software. With the help of this software an individual can design a PCB as well as view its 2D and 3D model.

Visit

A technical visit to PEDA (Punjab Energy Development Agency) Complex, Sector 33-D was organized on 4th October 2016. The complex is totally solar based and has a 5 Star rating by BEE (Bureau of Energy Efficiency). The primary objective of PEDA is promotion and development of non-renewable energy resources in the state, and Creating Awareness & Publicity in masses to adopt Non-conventional Energy Sources and Energy Saving / Conservation.

Even if you are on the right track, you'll get run over if you just sit there

Will Rogers

Cultural Events

Yoga Day

The Electrical Engineering department students actively participated in the International yoga day celebration at NITTTR Campus on 21st June 2016. This program was conducted by **AICTE**(All India council for technical education) in collaboration with **S-Vyasa Yoga University, Banglore**. The mentors also conducted training for the students a day before the yoga day. All the students were awarded participation certificates and were educated about the benefits of yoga. The participants were also told some yoga asanas that can help to keep themselves healthy.

Some Facts about Yoga

1. Paramahansa Yogananda was an Indian yogi who taught Kriya Yoga to millions around the world.
2. B K S Iyengar was considered to be the foremost of the modern yoga teachers in the world.
3. Research has suggested that yoga improves social and occupational functioning in schizophrenic patients.
4. A 2008 market study in *Yoga Journal* reports that some 16 million Americans practice yoga and spend $5.7 billion a year on gear.
5. Ancient yogis believed that we only have a limited number of breaths in each life. Hence, it made sense to stretch our life out a bit longer by taking slow and deep breaths.
6. The Guinness Book of World Records currently lists 85-year-old Bette Calman from Australia as the world's oldest yoga teacher

Source: www.thebetterindia.com

Departmental Events

Chairman's Visit

The respected chairman Dr. K.K Talwar of NITTTR Chandigarh visited the Electrical Department on 10th January 2016. The respected chairman was warmly welcomed by the students and all the faculty members. He guided students and motivated them with his encouraging words.

Short Term Course (STC) on MATLAB

A short term course (STC) was organized by the faculty member of EE department Er. Shimi S.L. on 'MATLAB and its hardware interface through ICT'. All the students along with some STC participants attended this course. This course was held from 11th January to 15th January 2016.

Expert Talk

An expert talk by Dr. Vijay Nehra was conducted on 15th January 2016 on the topic "S-functions in MATLAB". He gave great insights to students about the interfacing of various real time devices in MATLAB.

Awarded Doctorate of Philosophy

Faculty of Electrical Department Dr. **Ritula Thakur** completed her Ph.D. Thesis and was awarded doctorate. Her topic of PhD was **Design and Development of a Microcontroller based moisture content measuring device for cereal grain using their electrical properties.**

Expert talks given by the faculty

S.No	Topic , Place and Dates of Expert Talk	Name of Faculty
1	**Programming in MATLAB** to the faculty of Applied Science Department of Chandigarh University, Gharuan, Panjab during 8 – 9 July 2015 in the FDP on MATLAB Application in Numerical Methods.	Dr. Lini Mathew
2	**MATLAB and its Neural & Fuzzy Toolboxes** under the ECE Electechural Club, CGC – College of Engineering, Landran, Mohali on 23 September, 2015.	
3	**MATLAB and its Applications in Neural Network & Fuzzy Logic** in Department of Electronics and Communication Engineering, University Institute of Engineering, Chandigarh University, Gharuan, Panjab on 6 October, 2015.	
4	**Solid State Control of Electric Drives**, Baba Banda Singh Bahadur Engg. College, Fatehgarh Sahib ,July 8, 2015 (Morning) during PTU-PITTTR sponsored five days Faculty Development Program on "Recent Trends in Electric Drives and Power System" from 6th-10th July, 2015	Mrs. Shimi.S.L
5	**MATLAB/ SIMULINK for Solid State Control of Electric Drives**, Baba Banda Singh Bahadur Engg. College, Fatehgarh Sahib, July 8, 2015 (Afternoon) during PTU-PITTTR sponsored five days Faculty Development Program on "Recent Trends in Electric Drives and Power System" from 6th-10th July, 2015	
6	**Hardware Implementation of AI Techniques using MATLAB /SIMULINK with dSpace / Arduino Interface**, July 10, 2015, at FDP on "Emerging Trends in Artificial Intelligence" at Global Institute of Management & Emerging Technologies, Amritsar	
7	**MATLAB/SIMULINK for Engineering Application with practice session** at STC on Engineering Applications of MATLAB under TEQIP-II on 6th Aug 2015 , session 1, organized by Govt. Mahila Engineering College, Ajmer	
8	**Real World Applications of Microcontrollers** to the faculty of Electronics and Commincation Engineering Department of Chandigarh University, Gharuan, Panjab on 8th July 2015	Dr. Ritula Thakur

International Conference

A special program was conducted in NITTTR Chandigarh on **Young Business Leaders Program on Socially Responsible Business**. This program was conducted by UNESCAP-EBAC Bangkok, CPSC Manila from 19th February and 20th February 2016. The students of the department attended this program and attended various talks given by experts on creating business that not only profits the people but also helps the society.

Dream what you want to dream, go where you want to go, be what you want to be. Because you have only one life and one chance to do all the things you want to do

Short Term Courses for Poly. and Engg. Colleges

(a)Department Specific

Sr. No.	Name of the Course along with dates	Dates	Course organiser	Total No. of Participants
01.	Power Electronics and Its Applications	20-24 July,2015	SSL	16
02.	Laboratory Practices in Power Electronics	20-24 July, 2015	HRS	07
03.	Facts and Smart Grid Technology	03-07 August,2015	LM	09
04.	Electrical, Electronics and Computer based Projects	02-06 Nov.,2015	SSL	05
05.	PlC Practices and Applications	07-11 March,2016	RT	06

(b)Interdisciplinary

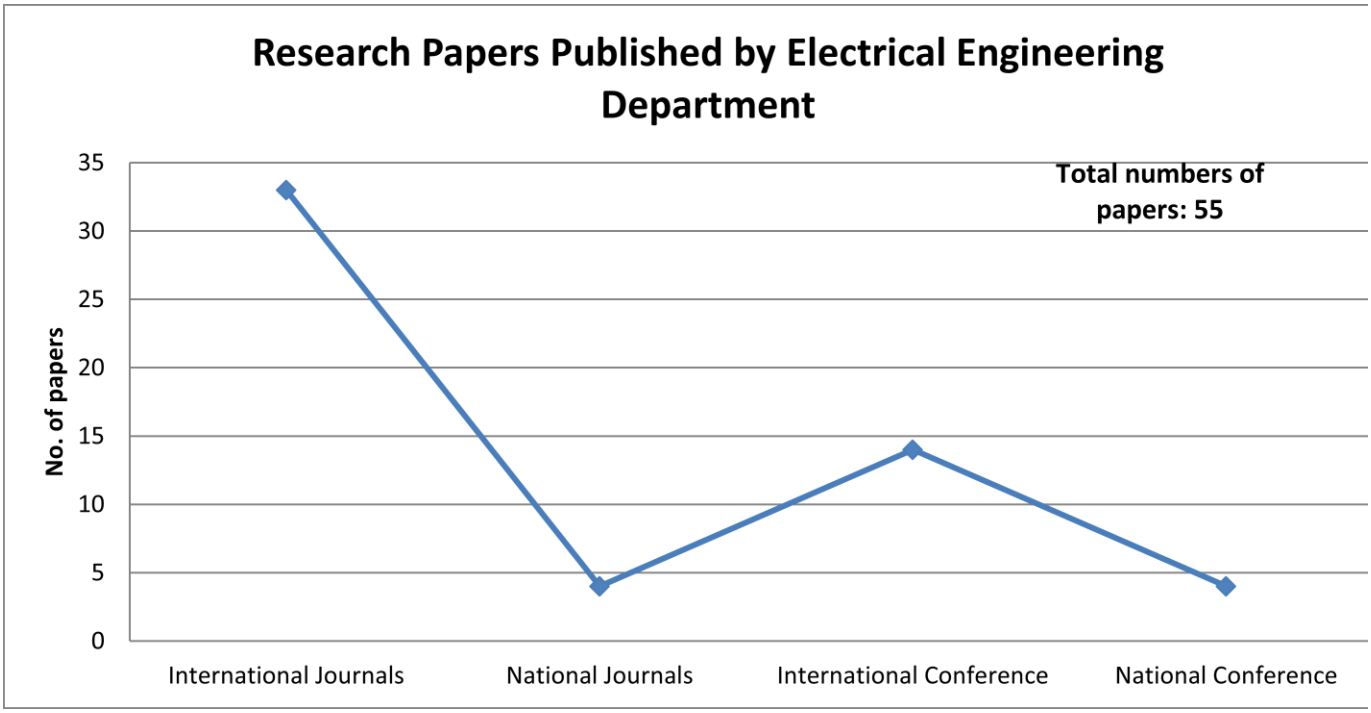
Sr.No.	Name of the Course	Dates	Venue	Course organiser	Total No. of Participants
01.	MATLAB/SIMULINK with Ardunio Interface	**06-10 April, 2015**	Desh Bhagat Group of Institutions.	SSL	70
02.	Hands on Experience on LabVIEW	**25-29 May,2015**	NITTTR, Chandigarh	.LM	31
03.	Hand-on Practices on Proteus & Multisim Software	**27-31 July,2015**	NITTTR, Chandigarh	RT	04
04	Scilab Programming	**27-31 July,2015**	NITTTR, Chandigarh	LM	04
05.	Renewable Energy Sources and Energy Conservation	**31 August to 04 September,2015**	NITTTR, Chandigarh	PS	04
06.	Hands on Experience on MATLAB	**14-18 September, 2015**	NITTTR, Chandigarh	LM	12
07.	Scilab Programming	**16-20 Nov.,2015**	NITTTR, Chandigarh	LM	06
08.	Embedded System Based Practices	**01-05 February,2016**	NITTTR, Chandigarh	RT	06

(c)Through ICT

S.No	Name of the Course	Dates	Course Organizers	No. of participants
1.	Alternate Energy Sources and Energy Conservation	July 27-31, 2015	PS	291
2.	Advanced Microcontrollers and Microprocessors	Sept.14-18, 2015	RT	139
3.	Industrial Automation	Oct. 05-09, 2015	RT	155
4.	Sustainable Development: Challenges and Opportunities	Oct. 12-16, 2015	PS	309
5.	MATLAB and its Hardware Interface	Jan.11-15, 2016	SSL	672
6.	Smart Grid and Renewable Energy Sources	Jan.18-22, 2016	LM	239
7.	Energy Management	Feb.08-12,2016	SSL	246
8.	Soft Computing Techniques using MATLAB	Feb.,15-19,2016	LM	234

Total number of participants trained by Electrical Engg. Dept.: **2465**

Departmental Events



Comparison Chart
LED's, Incandescent Bulb, CFL's

Output	LED lights (Light Emitting Diodes)	Incandescent Bulb	Compact Fluorescents (CFL)
			
Life Span(average)	50,000 hours	1,200hours	8,000 hours
Watts of electricity used	6-8 watts	60 watts	13-15 watts
Kilo-watts of Electricity used	329KWh/yr	3285KWh/yr	767KWh/yr
Light output(average)			
Lumens	**Watts**	**Watts**	**Watts**
800	6-8	60	13-15
1600	16-20	100	23-30

"The only way of finding the limits of the possible is by going beyond them into the impossible."- Arthur C. Clarke

International Training

The Electrical Engineering Department conducted a Programme on "Electrical Installation and Maintenance Work" for training the trainers' of Lagos Skipper Engineering Academy, Ikotun, Lagos,Nigeria during the period 18th – 30th April 2015 in at NITTTR , Chandigarh

International Visit

The head of Electrical Department Dr.Lini Mathews visited Lagos Skipper Engineering Academy (LSEA), Government Technical College, Ikotun, Lagos. During this visit, the need gaps were analyzed and plans to fill them in course of time have been made. Impressed by the course and training methods the Nigerian government has planned to send more teachers from LSEA, Nigeria to visit NITTTR, India for more specialized training. In the view of such a great response Electrical Engineering Department, NITTTR is preparing around 100 educational video films which can be used by the teachers and students of LSEA for better instruction. This project was a partnership between the Cross River State Government and Highbury College, Portsmouth, UK and has been contracted to deliver a curriculum of international standards. The report was prepared and submitted to Commissioner of Education, Cross River State, to hand it over to Governor Benedict Ayede.

International Visit (Contd.)

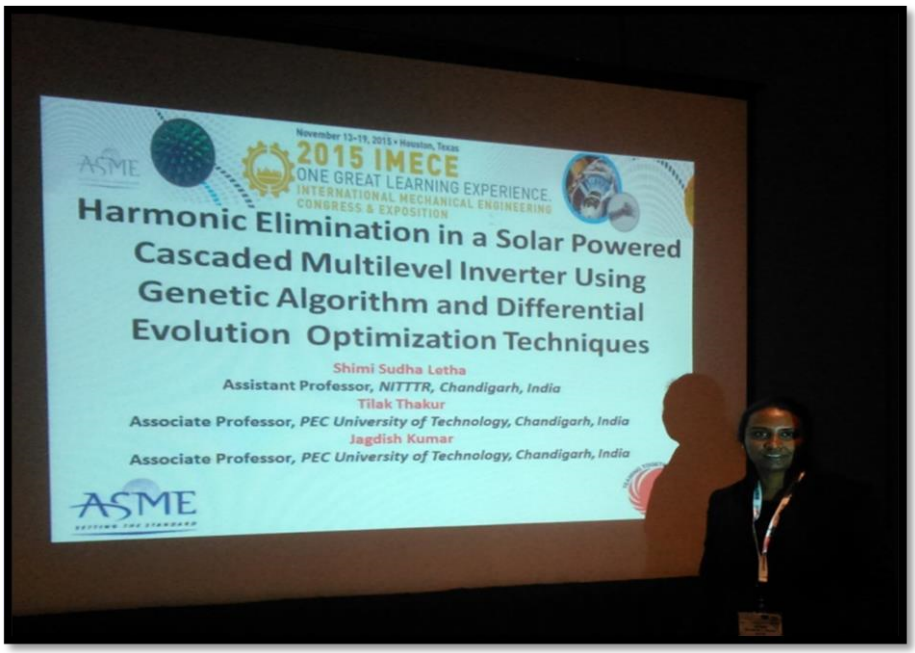
Dr. Lini Mathew at the Lagos Skipper Engineering Academy (LSEA), (Government Technical College, Ikotun, Lagos)

Dr. Lini Mathew training the students at LSEA (Government Technical College, Ikotun, Lagos)

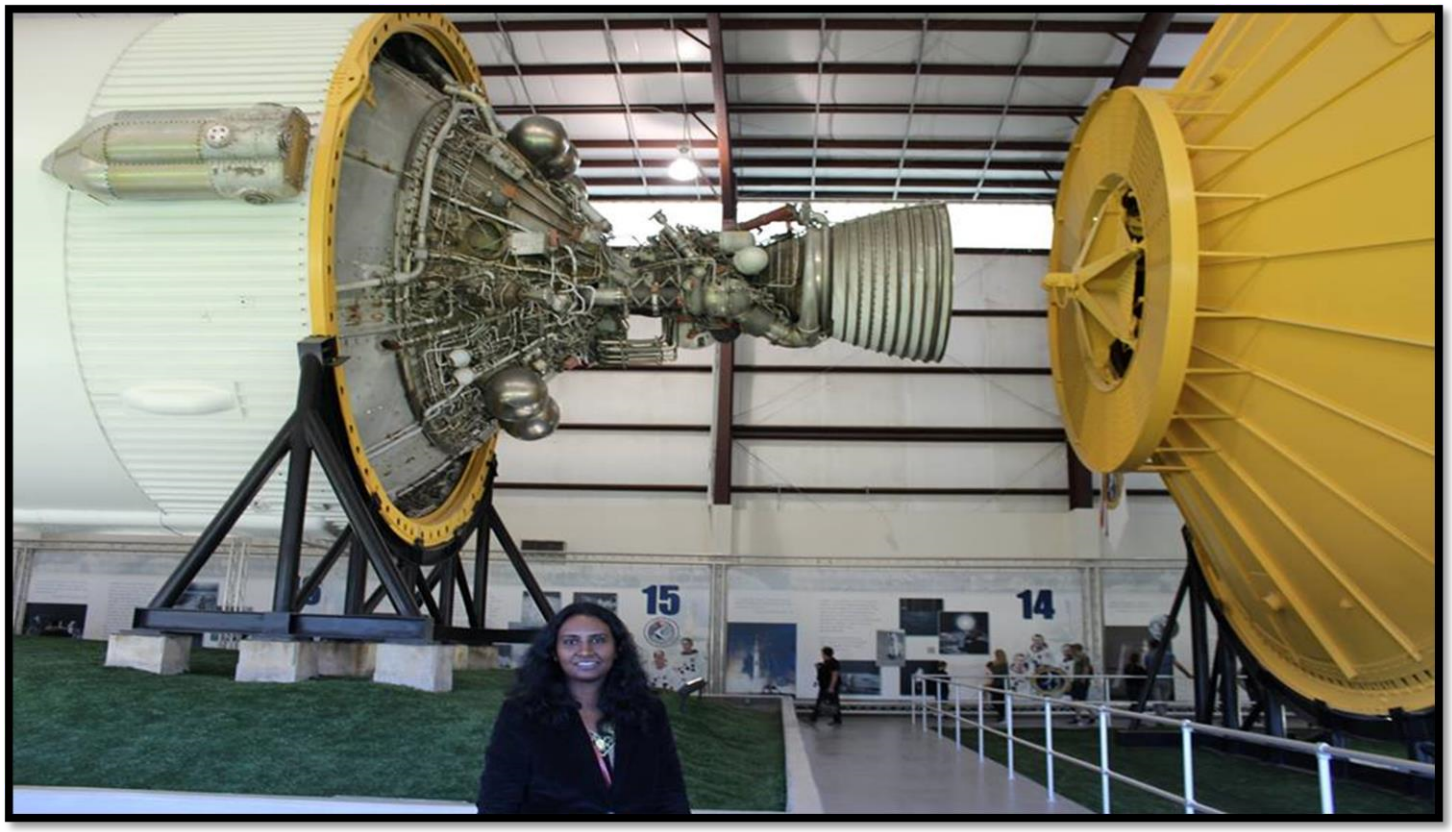
Dr. Lini Mathew submitted the report to Commissioner of Education, Cross River State, to hand it over to Governor Benedict Ayede.

Paper Presentation and Visit to NASA

Ms. Shimi Sudha Letha, faculty of Electrical Department presented a paper in International Mechanical Engineering Congress & Exposition, IMECE2015 that was held in Houston, Texas during November 13-19, 2015. The title of the paper presented was "Harmonic Elimination in a Solar Powered Cascaded Multilevel Inverter Using Genetic Algorithm and Differential Evolution Optimization Techniques".



Paper presentation at IMECE 2015



Technical visit to NASA, Houston, Texas

Paper Presentation

Two of our students presented research papers at the **International conference on communication and computing**. This conference was organized by Drona Charya College of Engineering, Gurgaon. This conference was held during 9th September to 11th September 2016.

This conference was attended by two of our students.

1. Vivek Ahlawat
2. Garima Gupta

The title of the paper presented by Mr. Vivek Ahlwat was "**Advance Approach Towards Elbow Movement Classification using Discrete Wavelet Transform and Quadratic Support Vector Machine**"

The title of the paper presented by Ms. Garima Gupta was "**Elbow Movement Classification of a Robotic Arm using Wavelet Packet and Cubic SVM**"

Do you know?
Diesel fuel has a very low flammability. In fact; you could throw a lit match into a puddle of diesel fuel and it would likely be put out immediately.

Paper Presentation

Two of our students presented research papers at the **International Conference on Power Electronics, Intelligent Control and Energy Systems**. This conference was organized by Delhi Technological University. This conference was held during 4th July to 6th July 2016.

This conference was attended by two of our students.

1. Prateek Virdi
2. Babita Thakur

The title of the paper presented by Ms. Prateek Virdi was **"Discrete Wavelet Packet based Feature Extraction for Binary Classification of Elbow Movement using Fine Gaussian SVM".**

The title of the paper presented by Ms. Babita Thakur was "**Binary Movement Classification of EMG signal using SVM and Wavelet Packet Transforms**".

Entrepreneur (NITTTR Startup)

"A creative idea in mind and positive thought can set new goals in life"- with the same thought ,Enovate Skill was started by the students of electrical department, Alok Deep along with a student from mechanical department, Ajay Godara and Vikram Singh Bawa. They conduct training for students around the country with hands on experience of the electrical and electronic devices. They have set up a lab in NITTTR campus. The Enovate Skill lab works like a hub of professionals and learners.

Robotics Competition

The Electrical Department has an active Robotics Club. The students of the Robotics club have scored many achievements in various events not only inside the campus but also outside campus.

Two of our students Ms. Babita and Mr. Manjit Singh were given appreciation award for participating in various robotics events outside the campus.

Apart from this, the other achievements of the robotics club include:

- 4th in All India ROBOWAR Events
- 3rd in IRC event organized by IIT Bombay
- 3rd in All India ROBOWAR event, IIT Kharagpur
- Runner up in All India STAIR CLIMBER event, IIT Kharagpur
- Runner up in All India HYDRAULIC ARM event, IIT Kharagpur
- Runner up in All India LINE FOLLOWER event, IIT Kharagpur

Poem

चला है चक्र वक़्त का , एक बार फिर से

अलविदा कह गया , यह साल हमसे

भूल जाओ वह बुरे लम्हे तुम अब

जल लो एक ज्योति नई तुंम सब

सुबह की किरण से यह वादा करो

चलोगे सचाई से यह इरादा करो

इरादों को रखना , अपने तुम नेक

मुश्किलें यूँ ही आएंगी , जीवन में अनेक

मंज़िल तुम पाओगे, एक दिन ज़रूर

वादा है विवेक का , दूर रखना गरूर

विवेक अहलावत

Cooking

Poha

The dish I am going to to share with all is Poha . It's a Gujrati dish.

Ingredients:-

2 potatoes
1 green chilli
4 teaspoons of Oil
1 spoon Rai
Poha
2 Tomatoes
1 spoon Turmeric
1 Spoon Red Chilli

Procedure

Wash everything that you possibly can especially hands and utensils. Put 1 spoon Rai in 4 teaspoons of Oil in the big pan (we call it kadhai)Mix the Rai , Oil and cutted Potatoes and let them be cooked(Finer the cutting of potates , easier to cook them)Put one spoon turmeric and one spoon red chilli (here I used 1 spoon as according to the quantity of poha). Now put the poha and mix it nicely. Let them cook for 5 minutes. Serve however you want

The Electrical world of NITTTR, Chandigarh
E-BUZZ

Note from the Editor

I am very happy to present you the second edition of the newsletter of Electrical Department of NITTTR, E-buzz. This newsletter is a collective effort of the students of our department to bring out to the world the various advancements and achievements. I hope that you like our work and appreciate the efforts done by our students.

Er. Shimmi S L
Assistant Professor,EE
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Thank you