



NEW HORIZON
COLLEGE OF ENGINEERING

Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC
Accredited by NAAC with 'A' Grade, Accredited by NBA

**DEPARTMENT OF ELECTRICAL AND
ELECTRONICS ENGINEERING**

AUTUMN TRONICLES

Biannual EEE Magazine

VOLUME 7 ISSUE 1
November 2017

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MESSAGE FROM CHAIRMAN

It's pleasure to present my views for the biannual EEE magazine for Autumn Tronicles 2017. The Department of Electrical and Electronics Engineering has always been one of the most active and happening Departments of our Institute and has brought us lot of pride over the past. The Institute as a whole has been undergoing very drastic reforms in terms of curriculum updation and course structure.



The EEE Department has taken up these readily which we hope will work for the benefit of the students. The new course plans have been applied to some of the senior years in UG apart from the first years as well, and we look forward to the feedback on the same to ensure we're moving on the right path. It is always good to see the students bring out their creative and hidden talents in any form and this would be a perfect platform for the students of the Department. This would also serve as an apt magazine for the sharing of technical articles by faculty and students from their respective areas of research. All the very best.

Dr. Mohan Manghnani

MESSAGE FROM PRINCIPAL



At NHCE, We understand that the need to teach beyond curriculum so as to make our students 'Industry Ready'. Recent observations made by many stalwarts in the industry indicate the fact that a majority of Engineering Graduates out of colleges are not employable. NHCE has always been in the forefront in ensuring that students are employable.

It gives me immense pleasure to pen a few words as prologue to the in-house magazine of the EEE department, Autumn Tronicles 2017. The issue is designed to present the events that have occurred as well as technical write-ups which makes the issue resourceful and informative. I congratulate all the contributors and also editorial board for bringing out such a nice issue. Happy Reading.

Dr. Manjunatha

MESSAGE FROM HEAD OF THE DEPARTMENT

It is my pleasure to pen my views for release of this semester issue of “Autumn Tronicles 2017”. I am extremely delighted to acknowledge that the editorial team has done a stupendous job of subsuming all the key events which have taken place over the course of last few months. To Top it off, this Magazine includes major events witnessed by our department as well as Engineering Advances in the Electrical Field.



The essential objective of the Technical Magazine is to inform, engage, inspire and entertain a diverse readership – including students, faculty, parents and alumni- with a timely and honest portrait of our department activities. This issue has made an earnest attempt in this direction and all the credit for its success falls upon faculty and students who have worked with dedication and enthusiasm to bring the issue forward. I convey my regards to all the readers.

Dr.R.Elumalai

MESSAGE FROM FACULTY ADVISOR



On Behalf of the Team, I am delighted on the launch of the first issue of “Autumn Tronicles 2017”, on the eve of currents. The Clubs of EEE Department has played its instrumental role, this academic year as well, alike the previous years, through the year long activities of various workshops and social events.

The EEE Magazine has been experiencing a paradigm growth in the recent past and is now taking a new shape as a technical magazine adding a new flavour every year. I appreciate this initiative and wish whole heartedly that Spring Tronicles accomplish greater heights and wider reach. With no doubt I aspire the EEE students to take this association and the magazine to an elevated horizon. Wishing you a very great and successful venture ahead.

Dr.S.Sujitha

EDITORIAL TEAM

Faculty Advisor(s)

- Dr. S.Sujitha
- Prof. Deepa V B

Student Co-ordinator

- R.Arjumanth Farraj
- Vikas G
- Madiha Ayub

Chief Editor

- Avishek Sinha
- Nairmish Kumar Bareek
- Mohammed Saif.M
- Sharath A N

Design Heads

- Viswajeet Gupta
- Vaishnavi Salunke
- Swaroop Kulkarni

Committee members

- Preethi Sinha
- Preethu Nath
- Navya

ABOUT DEPARTMENT

Electrical and Electronics Engineering is a continuously evolving subject. As technology has advanced, so have the challenge facing the modern engineer. EEE is a subject that naturally partners with other disciplines with whole new engineering avenues. From the very inception of the college in 2001, the Department of EEE offers four year full-time B.E program under three variants Global, Professional and Executive, affiliated to VTU with the intake of 60 students, now boast of 120 students per year. The Department is equipped with all the required laboratories, infrastructure and class rooms.

The B.E Degree program is designed to achieve a balance between depth of knowledge acquired through specialization and breadth of knowledge gained through exploration. The undergraduate degree courses offered by department provide a comprehensive foundation in the core topics of EEE coupled with an area of specialization relevant to emerging engineering challenges. The curriculum has been designed to create professional electrical and electronics engineers, who can serve the fields of core Electrical Engineering, information and communication systems, and other related fields.

VISION AND MISSION OF THE DEPARTMENT

VISION

To evolve into centre of excellence in Electrical and Electronics Engineering for bringing out contemporary engineers, innovators, researchers and Entrepreneurs for serving nation and society.

MISSION

- To provide suitable forums to enhance the teaching – learning, research, development activities.
- Framing and continuously updating the curriculum to bridge the gap between industry and academia in the contemporary world and serve society.
- To inculcate awareness and responsibility towards the environment and ethical values.

PROGRAM OUTCOMES (POs)

Electrical and Electronics Engineering Graduates will be able to:

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

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.

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.

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.

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

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.

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.

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

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

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.

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.

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 (PSOs)

PSO 1: Graduates will be able to solve real life problems of power system and power Electronics using MiPower, PSPICE and MATLAB software tools and hardware.

PSO 2: Graduates will be able to develop and support systems based on Renewable and sustainable Energy sources.

WORKSHOPS ORGANISED BY EEE



Workshop on E Digital Marketing
15.09.2017 and 16.09.2017



Workshop on Mobile App
Development on Automation
on 06.10.2017 and 07.10.2017



Workshop on Android for
Electrical Engineers on 13.10.2017
and 14.10.2017



Workshop on Electrical AutoCAD on
06.11.2017

EVENTS IN LINE



Hands on Training in
PLC and SCADA



Energy Conservation
Awareness Programme
2018



Greenovate – Idea
Presentation on Energy
Conservation -



Workshop on Create
your own design using
Adobe Tools on



Workshop on Revit
Mep on



International Conference on
New Horizons in Science
Engineering and Technology



Tech Horizon-2018

GUEST LECTURES

Mr. Shivaraj Gudagunti,
Asst. Engineer, TUV,
Bangalore

- **Parallel Operation of Synchronous Generator**
- **(V A and B)**
- **11/11/2017**

Mr. Neelamekakanna,
SMTc, Global Foundaries,
Bangalore

- **Operational Amplifier Applications and Integrated Circuit (IC) Fabrication**
- **(III A and B)**
- **11/11/2017**

Ms. K. Shanthi,
Asst. Training Engineer,
LiveWire, Chennai

- **State Machine**
- **(III A and B)**
- **10/11/2017**

Mr. T.R. Sathyanarayana Rao,
Trainer, KPTCL Bangalore .

- **Substation Layout, Bus Arrangements and Substation Equipment**
- **(V A and B)**
- **03/11/2017**

Mr. Guruprasad,
Team Lead, Manhattan
Associates; Bangalore

- **Templates and Exceptions**
- **(V A and B)**
- **02/11/2017**

Ms. Aishwarya
Lft. Officer, IAF

- **Woman Empowerment- Opportunities in Electrical Engineering**
- **(III,V,VII A and B)**
- **30/10/2017**

Dr. H. Naganagowda
Director, National Training
Center for Solar Technology,
Bangalore

- **Awareness of Smart Energy Consumption with Renewable Energy**
- **(III,V,VII A and B)**
- **26/10/2017**

GRAVITATIONAL

WAVE

SCIENCE
CORNER

In Einstein's theory of general relativity, gravity is treated as a phenomenon resulting from the curvature of spacetime. This curvature is caused by the presence of mass. Generally, the more mass that is contained within a given volume of space, the greater the curvature of spacetime will be at the boundary of this volume. As objects with mass move around in spacetime, the curvature changes to reflect the changed locations of those objects. In certain circumstances, accelerating objects generate changes in this curvature, which propagate outwards at the speed of light in a wave-like manner. These propagating phenomena are known as gravitational waves.

They carry information about the black holes and the nature of gravity that scientists would not be able to obtain otherwise. This is the first time black holes have been directly detected. You can't see black holes with telescopes. Up until now, scientists inferred that black holes existed by observing stars and the gas swirling around them, measuring the gravitational effect black holes have on other matter in the universe. But with this discovery, scientists detected gravitational signals directly from black holes. In addition, scientists can now learn more about binary black holes: how many there are in the universe, how often they merge, how often they are born and where they come from. It also opens a new window for astronomy and astrophysics. Currently, scientists study space via electromagnetic waves. Now, scientists study space with gravitational waves.

DISCOVERY

Here we list down a number of problems which may be solved correctly and concisely by applying relativistic methods

1. The Lorentz Transformation
2. Transformation of fields and sources
3. Doppler Effect
4. Constitutive Equations
5. Boundary Conditions
6. Quasistationary Approach
7. The instantaneous rest frame hypothesis
8. Rotating Bodies
9. Induction Law
10. Accelerated frame of reference
11. Magnetic Levitation
12. Braking force exerted by motional Foucault currents
13. Acceleration of space vehicles



IS RELATIVITY RELEVANT TO AN ELECTRICAL ENGINEER

For most of us Relativity evokes intricate formal manipulations, pleasing to the professional mathematician, but awe-inspiring, and even repulsive, to the average Electrical engineer. And yet, Physics of the greatest importance hides behind the forest of tensors and four dimensional symbols which confronts the reader of relativistic texts. Einstein's fundamental 1905 paper, "Zur Elektrodynamik Bewegter Körper", already contains, in its title, the reason why the Physics of Relativity may indeed be relevant to the Electrical Engineer.

Whether Relativity may be termed relevant to the Electrical Engineer depends on the meaning attached to the word "relevant", and on the kind of engineer one talks about. The answer also depends on one's point of view, purely intellectual or utilitarian.

Intellectually, Relativity is a most satisfying theory, It allows one to formulate problems in a clear and systematic way and leads, for example, to a swift and correct derivation of a formula. It may be claimed that any first course In Fields should contain a short introduction to Special Relativity. From a utilitarian point of view we may assert, in all fairness, that most electrical engineers can live quite happily without Relativity. Electromechanical engineers, on the other hand, are in much greater need of Relativity for a host of problems, including those involving flux linkages and sliding contacts.



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HYPERLOOP TRANSPORTATION TECHNOLOGIES

Hyperloop is a new form of ground transport currently in development by a number of companies, which could see passengers travelling at 700 miles an hour in floating pods within low-pressure tubes. There are two big differences between Hyperloop and tradition rail. The pods carrying passengers travel through tubes or tunnels from which most of the air has been removed to reduce friction. This should allow the pods to travel at up to 750 miles per hour.

Rather than using wheels like a train or car, the pods are designed to float on air skis, using the same basic idea as an air hockey table, or use magnetic levitation to reduce friction. A number of different companies are working to turn the idea into a functioning commercial system.

The basic idea of Hyperloop as envisioned by Musk is that the passenger pods or capsules travel through a tube, either above or below ground. To reduce friction, most -- but not all -- of the air is removed from the tubes by pumps.

Overcoming air resistance is one of the biggest uses of energy in high speed travel. Airliners climb to high altitudes to travel through less dense air; in order to create a similar effect at ground level, Hyperloop encloses the capsules in a reduced-pressure tube, effectively allowing the trains to travel at airplane speeds but on the ground.



Virgin Hyperloop One's XP-1 passenger capsule.

A Boring Company tunnel Image



In Musk's model, the pressure of air inside the Hyperloop tube is about one-sixth the pressure of the atmosphere on Mars (a notable comparison as Mars is another of Musk's interests). This means an operating pressure of 100 pascals, which reduces the drag force of the air by 1,000 times relative to sea level conditions, and would be equivalent to flying above 150,000 feet altitude.

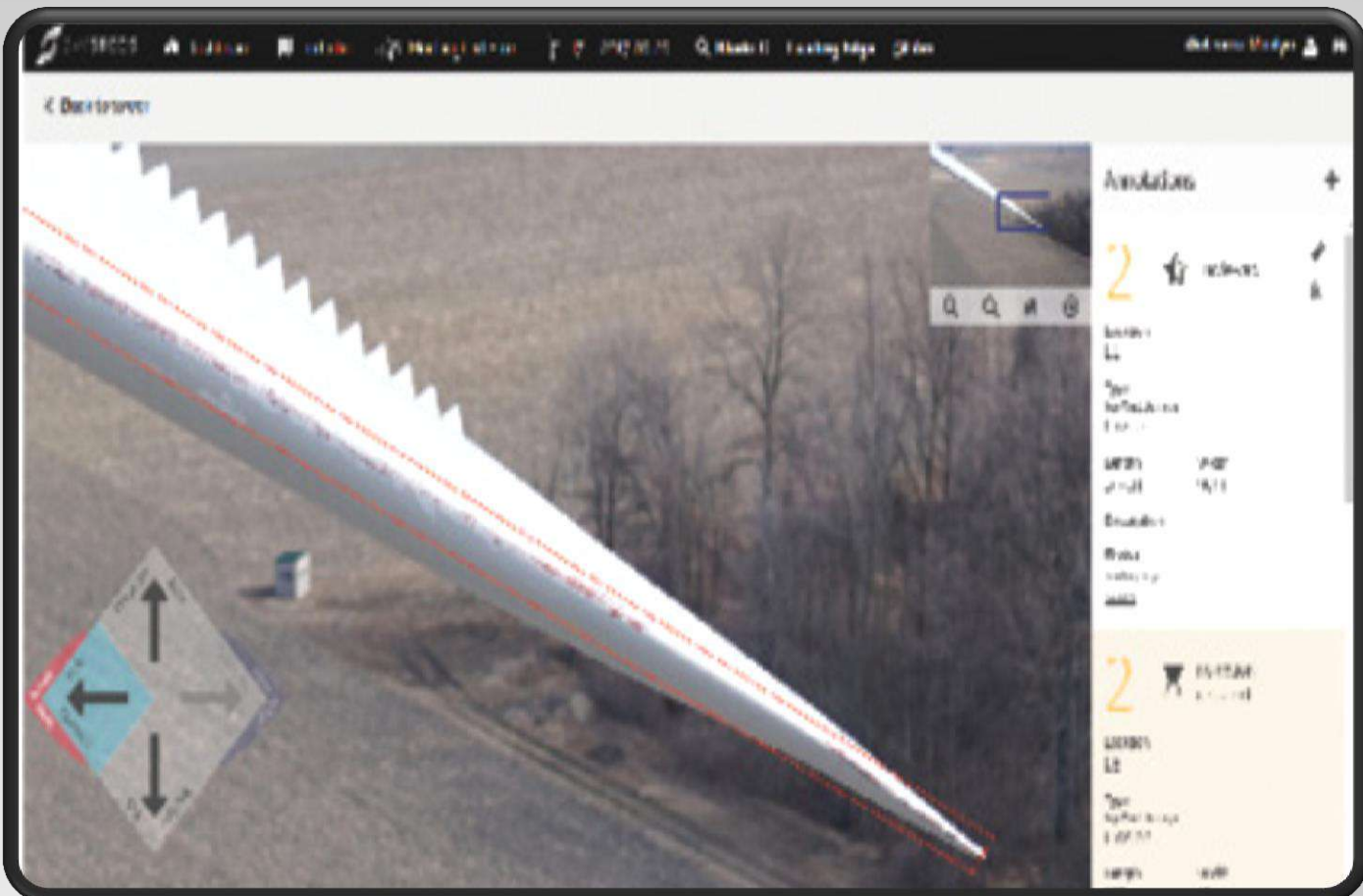
The pod would get its initial velocity from an external linear electric motor, which would accelerate it to 'high subsonic velocity' and then give it a boost every 70 miles or so; in between, the pod would coast along in near vacuum. Each capsule could carry 28 passengers (other versions aim to carry up to 40) plus some luggage; another version of the pods could carry cargo and vehicles. Pods would depart every two minutes (or every 30 seconds at peak usage).

The pods will get their velocity from an external linear electric motor comes in; effectively a round induction motor (like the one in the Tesla Model S) rolled flat. Under Musk's model, the Hyperloop would be powered by solar panels placed on the top of the tube which would allow it to generate more energy than it needed for operation.

DRONES FOR WIND TURBINE MAINTENANCE

The wind farm inspections is a difficult process when hundreds wind turbines are located. This manually impossible to do this in regular routine work. The reliability of the system improves when the maintenance is a day to day routine work. The drones are beginning to play a role in performing inspections of wind turbine blades.

The drones are controlled remotely or it can be Artificial Intelligent (AI) enabled to carryout routine work and transmit the data regularly. The drone is making all those decisions such as when to take photos, when to take flying routines etc on its own using AI. drones inspect wind turbine blades, looking for defects and damage from weather and wear. The drones also take complete turbine measurements that the company then correlates to the photos so it can pinpoint exactly where damage is when they find it. As the company matures, it will then be able to track damage over time, for example returning to the same wind farm one year later to see if the damage has gotten worse or stayed the same. Then we can come up with a recommendation for how to fix it.



10 POINTS FOR GETTING PLACED

Maintain a minimum CGPA of 6 with no standing arrears by 7th semester. This is the minimum criterion in many companies, so it improves your eligibility. Maintaining a CGPA above 7 increases the chances further.

Take CPCs seriously as they are made based on placement experiences. Similar questions are asked in interviews every year.

Find your area of interest. Focus on specific subjects so that you may make suitable choices of companies.

Have at least one major project on your resume by 4th year. It could be a research project or an industry-based project (i.e. in a company).

Read newspapers every day. They are the sources of all GD topics. Practise aptitude well. Every company has the first round as an aptitude test, so improve your speed.

Prepare a good resume using the right format. There should be not a single spelling/grammatical mistake in the resume.



Prepare a solid introduction. In interviews, first impression is the only impression. Practise your introduction repeatedly, record it and listen to it till you perfect it.

For interviews, you should know information about the company. Go through their website and Wikipedia page. This gives a good impression that you really are interested in the company.

Interviewers always look for confidence, positive attitude and a willingness to learn. Put on your best mannerisms during the process.

Take every experience as a learning process. Some may get it right the first time but some may struggle.

DONT GIVE UP

TIME OUT -PUNS



Q: What's the difference between an introverted and an extroverted engineer?

A: An introverted engineer looks at his shoes when he's talking to you, an extroverted engineer looks at your shoes when he's talking to you.

Q: What to give your favorite electrical engineer for his birthday?

A: Shorts.

Q: Why was the thermometer smarter than the graduated cylinder?

A: He had more degrees.

New engineer: "How do you estimate how long a project will take?"

Seasoned engineer: "I add up the time required for each task, then multiply the sum by pi."

New engineer: "Why pi?"

Seasoned engineer: "It ensures that all my budgets are irrational."

Q: Why did the electron throw up?

A: He was spinning.

A pessimist looks at a glass of water and states it is half empty,

An optimist looks at the same glass and states it is half full,

But an engineer sees it and states the glass is twice as tall as it should be.

Two atoms are walking down the street, and one says to the other, "Wait, wait, we have to go back. I've lost an electron somewhere."

The second atom says, "Really? Are you sure?"

To which the first atom replies, "Yes. I'm positive."

10 POINTS TO BECOME A SERIAL TEN POINTER

First step is wanting to be one!
Commitment is the key.

Forget the pleasures of the World Cup even if
your happiness is
more dependent on India's win rather than a 19/20
in tomorrow's CT.

Find the right competition to make yourselves
better, and try to win.

Find study buddies who will help you concentrate.
Not ones who'll distract you.
PS: RGING them is strictly not allowed.

Go to classes. Classes should mean more
than attendance.
It's not a crime to interact with the professors!

Make an effort to listen. Even if the power point
presentation has 330 slides.
A little hard, we know.

Be in the good books of the professors.
It always pays to come
on time (for the current class,
not the next) and listen attentively.

Plan and study ahead. All we're saying
is that if you sleep on your
notes for more time than stare into
your neighbours' answers
during the exams, you will perform better.
PS: Sometimes your neighbours
are from a different dept.

Have fun and take it easy. Engage
in sports or other
hobbies for just a while.

follow these every
SEMESTER

GLIMPSES @ GLANCE



13th BE Graduation Day was held on 1st June 2017



Teacher's day Celebration at NHCE



Ethnic Day Celebration



Women empowerment Committee of our College conducted an interactive workshop on 28-01-17



13th BE Graduation Day was held on 1st June 2017



71st Independence day celebration in NHCE.



REVELATIONS' 17



Sponsored by

E-Soft Club

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