

ELECTROCRATS

EEE Students Forum

Vol. 15, Issue 01, November 2021



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VISION

To be a nationally recognized center addressing the energy crisis and providing solution to the rural and industrial needs

MISSION

To develop within each student a robust repertoire of professional skills with moral integrity to launch successfully into a variety of careers in electrical engineering.

To establish a research group pf faculty and students, to explore ways of using electric energy efficiently and to replace conventional sources of energy with renewable ones.

To establish a facility, where faculty members and students can apply creatively their understanding of engineering principles to provide solutions to rural and industrial problems.

PROGRAMME EDUCATIONAL OBJECTIVES

- To train students such that they will be employed in fields of research and development, application, manufacturing and testing of Electrical and Electronics systems.
- To train students such that they would become entrepreneurs in the field of Electrical and Electronics Engineering.
- To train students to achieve positions of increased responsibility, both technical and supervisory, within an organization.

EDITORIAL

Dear Friends,

It gives us great pleasure and pride to be given the opportunity to publish department newsletter for the year 2020-21.

Action embodied in one's effort is the real key to happiness. There is no success and resultant happiness without action. What is more-you can derive satisfaction and happiness in having done your best. In spite of the tight schedule, the students of EEE Department have made this newsletter a reality by sharing their creativity, thoughts, general and technical knowledge.

Our sincere thanks to our management, Founder President, Dr. N.M. Veeraiyan, Director, Dr. Rajesh for providing us the necessary facilities. Our special thanks to our ever vibrant Principal N. Duraipandian for being the mainstay throughout our journey. We are grateful to our Head of the Department, Dr.. Monica P Suresh and all our faculties for their constant support

Editorial Board

INDEX

S.NO.	CONTENTS	PAGE NO.
1	Principal's Message	1
2	Vice – Principal's Message	2
3	HoD's Message	3
4	About the Department	4
5	Events in the departments	5
6	Faculty / Student Participations	7
7	Students' Articles	9

PRINCIPAL'S MESSAGE



Dr. N. Duraipandian. M.E., Ph.D.,
Principal

I am very glad to note that the department of Electrical & Electronics Engineering is releasing their newsletter for the academic year 2021-22. The department newsletter brings out the activities, achievements and creativity of the students in the engineering aspects.

The newsletter realistically connects the students, staffs, industries and institutional interaction. This newsletter contains various information about seminars, workshops, industrial visits, colloquium and Co-curricular activities. We aim at providing outstanding learning experience for all the students by conducting various activities in the student's forum to enrich their knowledge in different spheres. It is rewarding for us that each year we see our students develop and gain the confidence that will serve them well in life and work. I congratulate the editing team of this newsletter for their efforts and wishing them all the best!!

VICE PRINCIPAL'S MESSAGE



Dr. R. Senthil Kumar. M.E., Ph.D.,
Vice - Principal

While we march forward towards our goals, we should look back to recollect what we have already done. We should also be aware of what we are doing at present and how we are doing it. We should also bring out a plan for the future. Newsletters exactly do these things. Bringing out newsletters train students in collecting, correlating and disseminating information and ideas.

I am happy that Electrical Engineering department is bringing out the newsletter. I wish the outgoing students a successful career and a bright future.

HoD's MESSAGE



Dr. Monica P. Suresh, M.E., Ph.D.,
Head of the Department

I am very pleased to announce that the EEE student's forum is releasing its 1st issue Newsletter for the academic year 2021-22. The Newsletter brings out a lot of information which is useful to the students. I do hope students are benefited and gain a lot of knowledge through this Newsletter. I thank the editorial team for bringing out such a creative and interactive Newsletter. My best wishes to the students to achieve great heights in all their endeavors.

ABOUT THE DEPARTMENT



The Department of Electrical & Electronics Engineering was started in the year 2002, with an intake of sixty students. The team of twenty two faculty members of this Department are well qualified and experienced. The Department currently has about 250 students from various states of India, including the North-Eastern states, who work together in a cordial atmosphere conducive to excellence in education. The Department of EEE is committed to achieving academic excellence in Electrical Engineering and promoting R & D activities. The mission of this Department is to produce Engineers with self discipline, high integrity and good personality by providing excellent engineering education and training. The department offers the following courses

- B.E Electrical and Electronics Engineering (4 Years)
- M.E Embedded Systems Technologies (2 Years)

The Department is ISO 9001:2015 certified and also NBA accredited. The Department has well experienced faculty members of proven ability and diverse specialization. The faculty actively involves themselves in research in the fields of Power Systems, Robotics, VLSI, MEMS, Image processing and Embedded Systems. The Department is well equipped with the following Laboratories,

- Electrical Machines Laboratories
- Control & Instrumentation Laboratory
- Engineering Practices Laboratory
- Power Electronics Laboratory
- Power System Simulation Laboratory
- Embedded Systems Laboratory
- Microprocessor & Microcontroller Laboratory

To simulate an epitome of excellence is the motto of this department, all our class rooms are facilitated with Smart boards with internet, equipped with center of excellence in Wipro Mission 10x Learning Center.



DEPARTMENT EVENTS



DEPARTMENT EVENTS

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E DRESTEIN'21
 12th National Level Inter Collegiate Technical and Management Fest

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Organizes

TWO DAYS WORKSHOP ON
PYTHON FOR ELECTRICAL ENGINEERS

On 20th & 21st October, 2021



Workshop coordinator: Dr. M. Ulagamma, Asso Prof/ EEE/ 9842925311 | Mr. S. Joyal Isaac, AP/EEE/ 996582354 | Further details look in to www.drostein.in

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ADMISSIONS OPEN 2021-22
 8959902737 / 044 6672 6690


DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Cordially invites you for the online Guest lecture on

EHV AND UHV TRANSMISSION

19th OCT 2021 | 01:00 PM - 02:00 PM

Chief Guest



Dr. S. Dhivya,
 Postdoctoral Research Fellow
 Department of ECE, National University of Singapore
 (Adjunct researcher of Solar Energy Research Institute of Singapore (SERIS))

Dr. N. Duraispandian Principal	Dr. R. Senthil Kumar Vice Principal	Dr. V. Vijaya Chandraeswari Dean
Dr. M. Ulagamma Coordinator	Mr. S. Joyal Isaac Coordinator	Dr. Monica P. Suresh HOD

For Registration: <https://forms.gle/WMMChZKZKx4y65> | Join Meeting: <https://meet.google.com/urp-ndbx-eyw>

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Department of Electrical & Electronics Engineering

Cordially invites you for the Guest Lecture on

"Electric Vehicles"

By
Dr.S.Sreejith
 Asso Prof/EEE , NIT Silchar

On
 9th October, 2021, at 09.00 a.m.

Venue: EEE Embedded lab
 Audience: III and IV EEE

CO-ORDINATOR HOD PRINCIPAL

SAVEETHA ENGINEERING COLLEGE
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Department of Electrical & Electronics Engineering

Cordially invites you for the Inauguration of Guest lecture on

"Embedded C Programming"

By
Mr.G.Madhavan
 Senior Software Engineer,
 Robert Bosch Engineering and Business solutions

On
 18th September 2021 @ 1.30 p.m.

Online meeting link: <https://meet.google.com/wcf-sdsh-zrk>

Audience: II & III Yr EEE

Mr.J.Anish Kumar
 Dr.R.Vinifa
 CO-ORDINATOR

Dr. Monica P.Suresh
 HOD

Dr. N. Duraispandian
 PRINCIPAL

SAVEETHA ENGINEERING COLLEGE
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Department of Electrical & Electronics Engineering

Cordially invites you for the Inauguration of Guest lecture on

"Embedded System"

By
R. Deepak
 Senior Manager (Hardware Product Owner)
 Volvo Group, Bangalore
 &
G Ganesh Pandiyan
 Lead Design Engineer (EDS Engg & Research)
 TATA Elxsi Ltd, Bangalore

On
 9th September 2021 @ 2.00 p.m.

Online meeting link: <https://meet.google.com/wcf-gdsh-zrk>

Mr.J.Anish Kumar
 Dr.R.Vinifa
 CO-ORDINATOR

Dr. Monica P.Suresh
 HOD

Dr. N. Duraispandian
 PRINCIPAL



FACULTY / STUDENT PARTICIPATION



DEPARTMENT PARTICIPATION

Faculty Development Programs 14

Short Term Training Program 01

Workshops 02

Symposium / Conferences 02

Online Courses 01

Journal Publications 08



STUDENTS' ARTICLE



STUDENTS' ARTICLE

Demand for Electric Vehicles

Harini V | Year I | EEE

Demand for electric vehicles for commercial use is estimated to increase 15 times in the next six months, driven by the rise in fuel prices, incentives rolled out by the central and state governments and renewed emphasis by ecommerce companies to electrify their last-mile delivery fleets, said a financier of such vehicles.



Both central and state governments have announced incentives which have made electric vehicles a lot more affordable, while with low interest rates, EMIs have become smaller. “In July and August alone, there has been a three-fold increase in demand compared to pre-pandemic years. We expect a 15x rise in demand in the next six months (compared with pre-pandemic times),” said Aggarwal, who is also the company’s chief executive. With the government aggressively encouraging the use of e-mobility to cut down on crude oil imports and reduce vehicular pollution, major ecommerce companies have started looking at electrifying their delivery fleet and are placing orders for new products.

“The momentum is already there, sizeable scale will kick in in the next 9-12 months,” said Aggarwal. He estimates India’s market for electric vehicles for commercial use to grow to \$15-20 billion in the next five years. The market currently is negligible.

The objective of the initiative is to facilitate faster transition to green technologies in the urban delivery segment to reduce emission, and simultaneously leverage the volumes to enable establishment of a charging infrastructure and vendor base for EVs.

Given the rapid growth in ecommerce — accelerated now by the pandemic — as many as 8 million vehicles are expected to be on the road in the urban delivery segment by 2030, shows a study available with the government body. If India were to fully electrify its urban delivery fleet, the country’s EV financing industry is projected to be worth Rs 3.7 lakh crore at the time.

STUDENTS' ARTICLE

I may own a Tesla car

Harishwaran M R | Year I | EEE

Tesla was founded on the 1st of July in 2003 by a group of engineers based in San Carlos, California. They launched their first electric car 5 years later in 2008 the Roadster. They launched their first electric car 5 years later in 2008 the Roadster.



How exactly do Tesla cars work?

Tesla cars, also known as EVs have an electric motor instead of an internal combustion engine. They use a large traction battery pack to power the internal electric motor. Because Tesla cars run on electricity, they emit no exhaust fumes and do not contain the usual liquid fuel components, such as a fuel line, fuel pump, or fuel tank.

The rotor is simply a collection of conducting bars short-circuited by end rings. A 3 phase AC power output is given to the stator. The three-phase AC in the coils produces a magnetic field. Tesla motors produce a four-pole magnetic field. This rotating magnetic field induces a current on the rotor bars to make them turn. In an induction motor, the rotor usually lags behind the rotor speed (RMF speed). An induction motor has neither brushes nor a permanent magnet, yet remains very powerful. The fantastic thing about induction motors is that the rotation speed depends on the frequency of the AC power supply. This means the speed at which the wheel turns can be altered by simply varying the frequency of the power supply. This fact makes speed control on a Tesla easy and reliable. In fact, a Tesla motor can range from 0 to 18,000 RPM.

The battery pack is what supplies the induction motor with power. However, it produces DC power, this means that before the supply can get to the motor, it has to be converted from DC to AC power. This is where the inverter comes into play. Not only does the invert convert DC to AC, it also controls the AC power frequency, thus controlling the motor speed. The inverter can even shift the amplitude of the AC motor which in turn controls the motor output power. Essentially, the inverter acts as the brain of the electric car. This may come as a surprise to most, but the battery packs consist of vast collections of common lithium-ion battery cells, similar to those used in your everyday life.

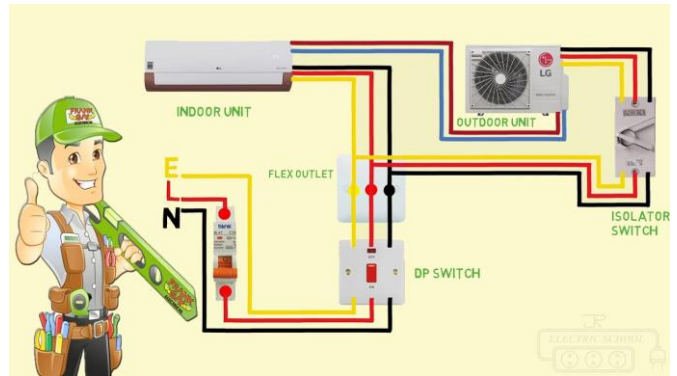
It has been proven that the Tesla Model S can continue to function well after passing 400,000 miles (643,737 km) and do not break down often. This is because electric cars do not rely on as much mechanical movement in order to function. Less moving parts mean less chance for something to break.

STUDENTS' ARTICLE

Inverter type air conditioners and Non-inverter type Air conditioners

Keshika V | Year I | EEE

Are you thinking about buying a new AC to beat the heat this summer? If yes, then you might want to check out the major differences between the two choices available in the market. Whether you want an AC for your homes or commercial space, it is very important that you compare the features of the inverter AC and a non-inverter AC.



ACs consume power, and you would be spending a substantial amount on paying the bills for your cooling unit. Therefore, you need to make a smart choice when it comes to choosing an air conditioner. ACs consume power, and you would be spending a substantial amount on paying the bills for your cooling unit. Therefore, you need to make a smart choice when it comes to choosing an air conditioner. Cost is perhaps the one part where non-inverter air conditioners will be the champion as they are comparatively cheaper than inverter AC. Inverter AC comes with energy-efficient technology and is smoother in operations that add to the value of inverter air conditioning units. Even the installation cost of the inverter AC is much more than that of non-Inverter AC. But if you plan to use it long term, you will save on your electricity bills by using an inverter type.

The key difference between the inverter and non-inverter air conditioning is the way to adjust the temperature. In an inverter AC, the compressor does not run constantly at full power, as the cooling and heating is an automatic process. This feature makes it more energy efficient. In a non-inverter AC, the compressor cannot be controlled. It can go on and off at any time to maintain the temperature within a particular limit, so it will either run at the full capacity or will not run at all. Basically, an inverter is a smart device that can change the AC current to DC and also the other way round. The inverter can regulate the temperature and speed of the compressor's motor by adjusting the power supply.

Basically, an inverter is a smart device that can change the AC current to DC and also the other way round. The inverter can regulate the temperature and speed of the compressor's motor by adjusting the power supply.

STUDENTS' ARTICLE

Mobile Technologies

Guru V | Year II | EEE

Mobile technology is a type of technology in which a user utilizes a mobile phone to perform communications-related tasks, such as communicating with friends, relatives, and others. It is used to send data from one system to another.



Mobile technology is largely employed in cellular communication systems and other related areas. It employs a network architecture that allows multiple transmitters to deliver data on a single channel at the same time. Because it reduces the potential of frequency interference from two or more sources, this platform allows multiple users to use single frequencies. The channel has evolved over time.

This is fast expanding; its applications are getting increasingly broad over time, and it is gradually replacing other similar sources of communication on the market, such as post offices and landlines. Mobile technology has progressed from a simple phone and texting device to a multi-tasking system that can be used for GPS navigation, internet browsing, gaming, and instant messaging, among other things. With the rise, experts claim that the future of computer technology is dependent on wireless networking and mobile computing.

Through tablets and small PCs, mobile technology is becoming increasingly popular. This smartphone system has since been improved to a big multitasking computer that can be used for GPS navigation, gaming, internet browsing, and instant messaging. Tablets and portable laptops have increased the adoption of mobile technology. The mobile networks that connect these devices are referred to as wireless systems. They allow speech, data, and (mobile) apps to be shared between mobile devices.

Mobile technology is becoming increasingly prevalent. Smartphone users have surpassed 3 billion, and the global mobile workforce is expected to reach 1.87 billion by 2022. Any gadget with internet capabilities that can be accessed from anywhere is referred to as mobile technology. Smartphones, tablets, some iPods, and laptops already fall within this category, but this list will undoubtedly grow in the future years.

PROGRAMME OUTCOMES (POs)

- 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 analyse complex engineering problems reaching substantiated conclusions using the 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.
- 8) **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- 9) **Individual and Teamwork:** 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. Life-Long
- 12) **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.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

- 1) Employ fundamental knowledge of electrical and electronics engineering to formulate, analyse and design smart and sustainable electrical systems.
- 2) Demonstrate proficiency in use of modern software tools to analyse, simulate and design electrical and electronics systems.

ELECTROCRATS'21



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