



Kongunadu
College of Engineering & Technology
[Autonomous]

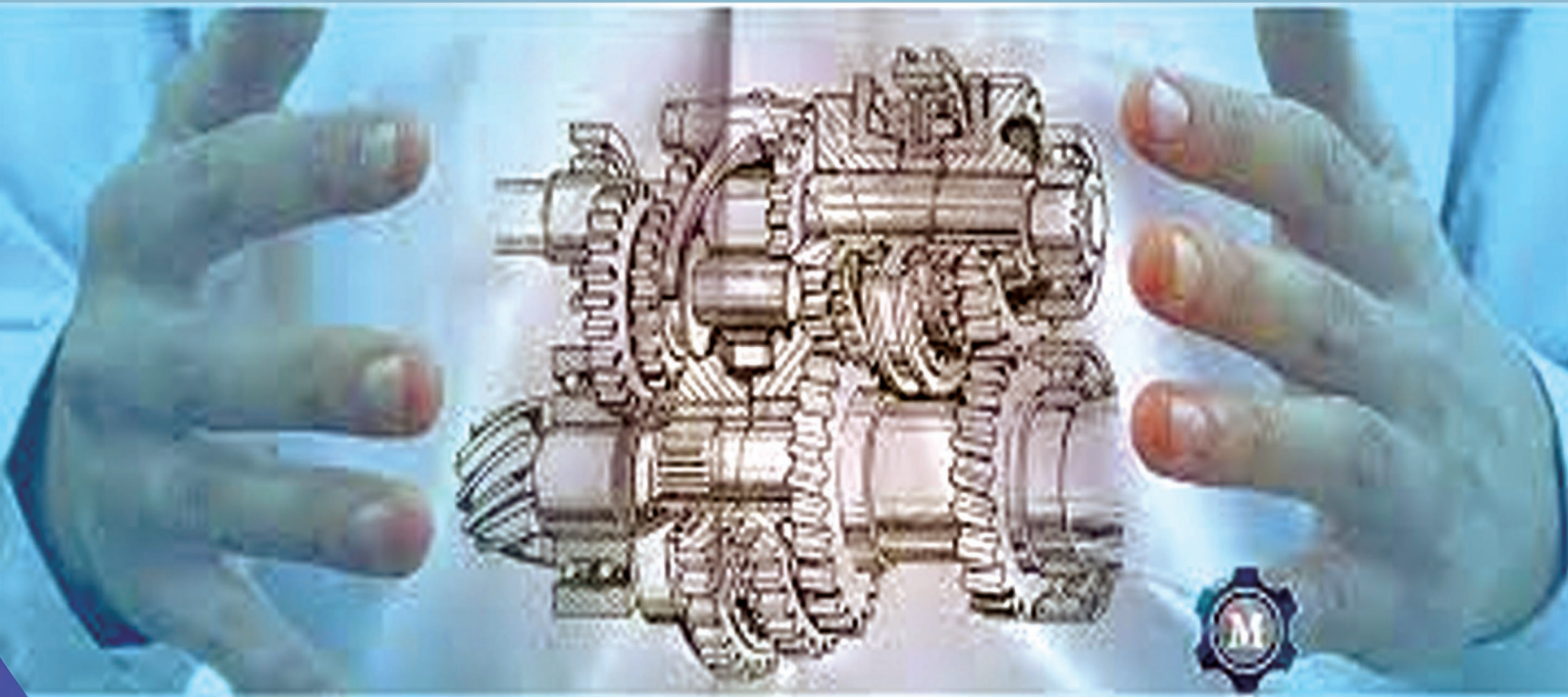
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(Accredited by NBA (CSE, ECE, EEE & MECH) and NAAC, An ISO 9001:2015 Certified Institution)

Namakkal - Trichy Main Road, Tholurpatti (P.O.), Thottiyam (TK), Trichy (Dt.) - 621 215.

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MECH MAGAZINE



DEPARTMENT OF MECHANICAL ENGINEERING

Department Vision & Mission

Vision

To endeavour the excellence in Mechanical Engineering field globally by producing competent and confident graduates to face the future challenges.

Mission

- ❖ Provide transformative education to students and improving their skills to face the global challenges in Mechanical and Allied Engineering.

- ❖ Nurture innovation, attitude, creativity, core competency and serve the society through requisite infrastructure and environment.

- ❖ Inculcate real world challenges, emerging technologies and endeavour the students to become entrepreneurs or employable.

Program Educational Objectives (PEOs)

PEO I : Graduates shall excel in the field of design, thermal, materials and manufacturing, as successful engineers or researchers or as entrepreneurs.

PEO II : Graduates will analyze problems, design solutions and develop products as a team member in advanced industrial projects.

PEO III : Graduates shall have professional ethics, team spirit, life-long learning, good oral and written communication skills and adopt corporate culture, core values and leadership skills.

Program Specific Outcomes (PSOs)

- ❖ **PSO 1 :** Professional skills: Students shall understand, analyze, design and develop integrated equipment, thermal devices and composite components.

- ❖ **PSO 2 :** Competency: Students shall qualify at the State, National and International level competitive examination for employment, higher studies and research.

Program Outcomes (POs)

Engineering Graduates will be able to:

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

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

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

- 4. Conduct investigations of complex problems :** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

- 5. Modern tool usage :** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling 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 team work :** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

- 10.Communication :** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

- 11. Project management and finance :** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

- 12. Life-long learning :** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

CHIEF PATROS

Dr.PSK.R.Periaswamy
Chairman
Kongunadu Educational Institutions

ADVISORS

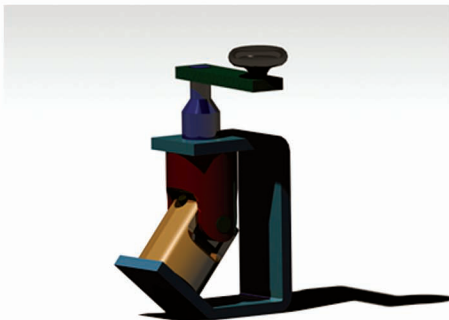
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K.Aakash,
IV- Mech

KNUCKLE JOINT



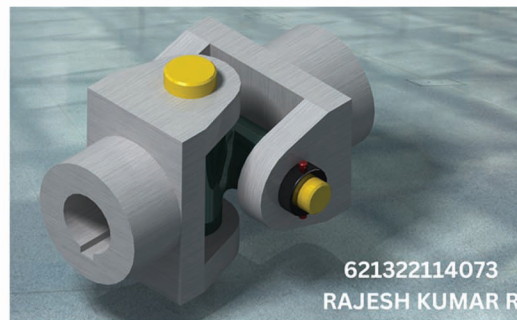
S.Dharan,
IV- Mech

STEAM ENGINE



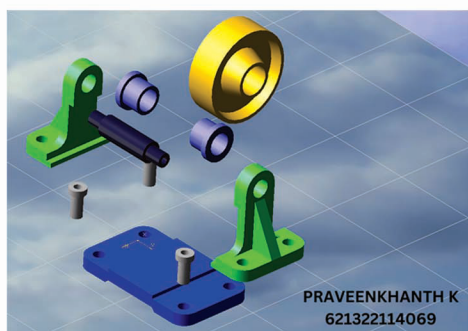
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COUPLING



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RAJESH KUMAR R

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PRAVEENKANTH K
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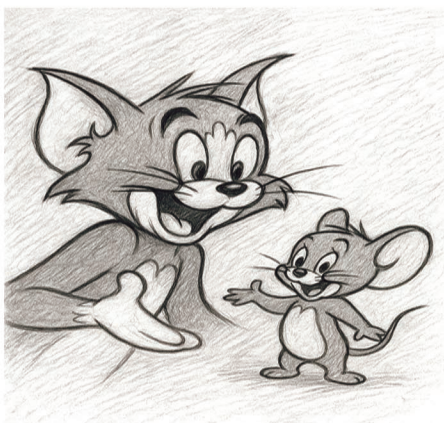
STUDENTS CREATIVITY

LION



M.Sudharsan,
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TOM & JERRY



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II-Mech

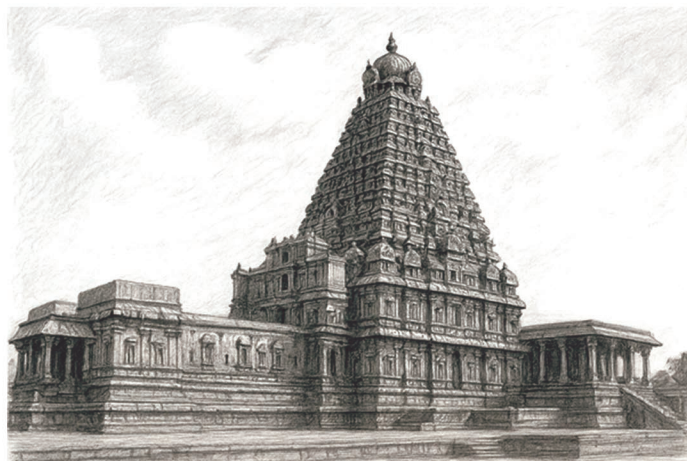
STUDENTS POEM

COLLEGE DAYS

In crowded halls and quiet nooks,
A life begins beyond the books.
Late-night talks and coffee strong,
Dreams take shape, we find where we belong.
Friends like stars in skies so wide,
Guiding us through the restless tide.
Laughter spills on hostel floors,
Memories etched on classroom doors.
Deadlines chase, yet hope runs fast,
Moments slip, too sweet to last.
Lessons learned in joy and strife,
College—our chapter, the heart of life.

S.Madheshwaran,
III-Mech

TANJORE TEMPLE



R.Chandran,
II-Mech

FAMILY

Family is a gentle flame,
A shelter from the storm,
A circle bound by love and care,
Where hearts are kept warm.
It isn't just the ties of blood,
But kindness, trust, and cheer,
The hands that lift us when we fall,
The voices we hold dear.
Through laughter bright and shadows deep,
They walk with us each day,
Guiding, holding, standing close,
In every single way.
A treasure time cannot replace,
A gift both strong and true,
Family is where life begins,
And love will see us through.

M.Ragunath,
IV- Mech

HEALTH

Health is the quiet gift of dawn,
A steady strength to carry on.
It blooms in habits, calm and true,
In all the little things we do.
Fresh air, a walk, a peaceful mind,
A kindness given, time to unwind.
A plate of colors, rest at night,
Keep body strong, keep spirit bright.
For wealth may fade, and days may part,
But health is treasure of the heart.
So guard it well, both mind and soul,
A balanced life will make you whole.

அப்பா

விழிகள் திறக்கும் காலை ஒளி நீ தான்,
வீட்டின் நிழலில் நிலையான மரம் நீ தான்.
சிரிப்பின் பின்னால் சோர்வை மறைப்பவன்,
சுமைகளைச் சுமந்து எங்களைத் தாங்குபவன்.
வியர்வைத் துளியால் வாழ்வு கட்டிடும்,
வெற்றி கனவுக்கு பாலம் அமைக்கும்.
என் முதல் நண்பன், என் முதல் ஆசிரியன்,
என் வாழ்வின் வீரன் என்றும் அப்பா தான்.

S.Sulaiman,
IV-Mech

கல்லூரி வாழ்வு

புதிய கனவின் முதல் படி கல்லூரி,
புது நண்பர்களின் சிரிப்பு ஒலி கல்லூரி.
வகுப்பறை சுவர்களில் நினைவுகள் எழுதும்,
வாழ்க்கை பாதையில் சிரிப்பை விதைக்கும்.
பாடம் சொல்லும் ஆசான் தரும் அறிவு,
நட்பு சொல்லும் தோழன் தரும் செல்வம்.
பரீட்சை பயம், போட்டி உணர்ச்சி,
ஆனால் சிரிப்பு தான் வாழ்வு நிறைவு.
கல்லூரி நாட்கள் விடியலைப் போல,
மனதில் என்றும் மறையாத ஒளி போல.

A.Diwakar,
III-Mech

இயற்கை

காற்றின் இசை பாடும் பாட்டு,
கானல் நீரில் காணும் தோற்றம்,
மலரின் நறுமணம் சொல்லும் ரகசியம்,
இயற்கையே வாழ்க்கையின் மகிழ்ச்சி!
மழை துளிகள் தாலாட்டும் ராகம்,
மலை உச்சியில் உதிக்கும் சூரியன்,
பறவைகள் பாடும் காலை இசை,
இவை அனைத்தும் மனதிற்கு ஓய்வு தரும்.
மனிதன் காக்கும் போது இயற்கையை,
இயற்கை காக்கும் அவன் வாழ்வை.
சேர்ந்து வாழும் உறவு இதுவே,
சிறந்த செல்வம் இயற்கை அமுதமே

R.Nathish,
III-Mech

STUDENTS THOUGHTS

Electric Vehicles: Driving Towards a Sustainable Future

Introduction

Transportation has always played a crucial role in human development, connecting people, goods, and ideas across the world. However, conventional vehicles powered by internal combustion engines (ICE) have also been a major source of air pollution, greenhouse gas emissions, and dependence on fossil fuels. In response to these challenges, Electric Vehicles (EVs) have emerged as a cleaner and more sustainable alternative. EVs, powered primarily by rechargeable batteries, represent a shift towards eco-friendly mobility solutions that could redefine the future of transportation.

Evolution of Electric Vehicles

The concept of electric vehicles is not entirely new. The earliest EVs appeared in the 19th century but lost popularity to gasoline-powered cars due to limited battery technology. In recent decades, however, advancements in battery storage, charging infrastructure, and renewable energy integration have revived interest in EVs. Today, governments, industries, and consumers worldwide are supporting EV adoption as part of global climate action.

Advantages of Electric Vehicles

1. **Environmental Benefits** – EVs produce zero tailpipe emissions, reducing air pollution in urban areas. When powered by renewable energy sources, their carbon footprint is significantly lower than that of fossil-fuel vehicles.
2. **Energy Efficiency** – Electric motors convert more than 85% of electrical energy into motion, compared to about 25–30% for traditional engines.
3. **Cost Savings** – Though EVs have a higher upfront cost, their running and maintenance expenses are much lower. Electricity is cheaper than petrol or diesel, and EVs have fewer moving parts, reducing repair costs.
4. **Technological Innovation** – EVs are equipped with modern features such as regenerative braking, smart connectivity, and autonomous driving capabilities.
5. **Energy Independence** – By reducing reliance on imported oil, EV adoption strengthens national energy security.

Challenges in Adoption

Despite their potential, EVs face several challenges:

- **High Initial Cost** – Batteries remain expensive, making EVs costlier than traditional vehicles.
- **Limited Driving Range** – Although improving, range anxiety still exists among consumers.
- **Charging Infrastructure** – A lack of widespread, fast-charging stations slows adoption, especially in developing countries.
- **Battery Disposal** – Recycling and safe disposal of used batteries remain environmental concerns.

Global and Indian Perspective

Countries like Norway, China, and the USA are leading in EV adoption through incentives, subsidies, and infrastructure investments. In India, the government's FAME (Faster Adoption and Manufacturing of Hybrid and Electric Vehicles) scheme aims to promote EV usage by providing subsidies and developing charging networks. With increasing fuel prices and pollution concerns, India is also witnessing a steady growth in electric two-wheelers, buses, and cars.

Future Outlook

The future of EVs looks promising, with rapid advancements in solid-state batteries, ultra-fast charging, and integration with renewable energy grids. As technology evolves and economies of scale reduce costs, EVs are expected to dominate global transportation by mid-century. Moreover, the rise of shared mobility and autonomous electric vehicles will further transform the way people commute.

Conclusion

Electric Vehicles represent not just a technological innovation but a pathway to sustainable living. They offer a solution to climate change, air pollution, and fossil fuel dependence. While challenges remain, continued research, government support, and consumer awareness will accelerate their adoption. In the long run, EVs are set to drive the world towards a greener, cleaner, and more energy-efficient future.

K.Harini,
IV-Mech

Renewable Energy: Powering a Sustainable Future

Introduction

Energy is the backbone of human civilization. From lighting our homes to running industries, transportation, and technology, energy is essential in every aspect of modern life. Traditionally, most of the world's energy has come from non-renewable sources such as coal, oil, and natural gas. However, these fossil fuels are limited, cause severe environmental damage, and contribute to global warming. As a solution, renewable energy has emerged as a clean, reliable, and sustainable alternative.

What is Renewable Energy?

Renewable energy comes from natural sources that are constantly replenished. Unlike fossil fuels, they do not run out and are eco-friendly. Common sources include:

- **Solar energy** – captured from sunlight using solar panels.
- **Wind energy** – generated from wind turbines.
- **Hydropower** – produced from the flow of water in rivers and dams.
- **Biomass energy** – obtained from organic matter such as plants and waste.
- **Geothermal energy** – harnessed from heat within the Earth.

Advantages of Renewable Energy

1. **Environmentally Friendly** – Renewable energy reduces greenhouse gas emissions and air pollution.
2. **Sustainability** – Unlike fossil fuels, these resources are inexhaustible.
3. **Energy Security** – Countries can reduce dependence on imported fuels.
4. **Job Creation** – The renewable energy sector creates employment in manufacturing, installation, and maintenance.
5. **Economic Benefits** – Falling technology costs make renewable energy increasingly affordable.

Challenges in Renewable Energy

Despite its advantages, renewable energy faces some challenges:

- **Intermittency** – Solar and wind power depend on weather conditions.
- **High Initial Cost** – Installation of solar panels, wind turbines, and hydro plants requires significant investment.

- **Storage Issues** – Efficient energy storage systems like advanced batteries are still developing.
- **Land and Resource Use** – Large-scale projects may require vast land and can impact ecosystems.

Global and Indian Perspective

Globally, countries are investing heavily in renewable energy to meet climate goals under the Paris Agreement. Nations like Germany and China are leading in solar and wind adoption, while Iceland utilizes geothermal power extensively.

In India, renewable energy has become a priority under initiatives like the National Solar Mission and Renewable Energy Development Programs. India aims to achieve 500 GW of renewable energy capacity by 2030, making it one of the largest clean energy producers in the world.

Future of Renewable Energy

With rapid technological advancements, the future of renewable energy looks bright. Innovations such as smart grids, improved energy storage, floating solar farms, and offshore wind projects are expected to revolutionize the energy sector. The integration of artificial intelligence (AI) and the Internet of Things (IoT) will make energy systems more efficient and reliable.

Conclusion

Renewable energy is not just an alternative—it is the future of global energy. By reducing dependence on fossil fuels, it offers a pathway towards sustainable development, cleaner air, and a healthier planet. While challenges exist, continued innovation, government policies, and public awareness will ensure a smooth transition to a renewable-powered world. Embracing renewable energy today means securing a brighter and greener tomorrow.

A.Krishnan,
IV- Mech

Recent Aviation Technology: Shaping the Future of Air Travel Introduction

Aviation has revolutionized the way people and goods move across the globe. Since the Wright brothers' first flight in 1903, the industry has continuously evolved with groundbreaking innovations. In recent years, aviation technology has advanced rapidly, focusing on safety, efficiency, sustainability, and passenger experience. These developments are reshaping the future of air travel and making it smarter, greener, and more connected.

Key Recent Technologies in Aviation

1. Electric and Hybrid Aircraft

To reduce fuel consumption and emissions, companies are developing electric and hybrid aircraft. These eco-friendly planes aim to support short-haul flights with lower operating costs and minimal environmental impact.

2. Sustainable Aviation Fuels (SAF)

Made from renewable resources like bio-waste and algae, SAF reduces carbon emissions by up to 80% compared to conventional jet fuel. Major airlines have already begun blending SAF into their operations.

3. Artificial Intelligence (AI) and Automation

AI is being used in flight planning, predictive maintenance, and air traffic management. Automated systems help pilots optimize fuel use, detect mechanical issues early, and enhance flight safety.

4. Advanced Materials and 3D Printing

Lightweight composite materials such as carbon fiber reduce fuel consumption. 3D printing allows faster and cheaper production of aircraft components, improving efficiency and customization.

5. Next-Generation Air Traffic Management

Modern air traffic systems use satellite-based navigation (like ADS-B) to improve flight paths, reduce delays, and enhance safety.

6. Passenger Experience Innovations

Recent improvements include in-flight high-speed Wi-Fi, personalized entertainment, larger windows, noise-reducing cabins, and advanced seating designs for comfort.

7. Urban Air Mobility (UAM) and Drones

Electric Vertical Take-off and Landing (eVTOL) aircraft are being developed as air taxis for urban transport. Drones are also widely used for cargo delivery, surveillance, and emergency response.

Benefits of Recent Aviation Technologies

- **Environmental Protection** through reduced emissions and fuel consumption.
- **Cost Savings** for airlines due to efficient designs and alternative fuels.
- **Increased Safety** with AI-assisted monitoring and automation.
- **Better Passenger Comfort** through improved cabin design and digital services.
- **Future Mobility Solutions** with air taxis and drone-based logistics.

Challenges and Future Prospects

While these innovations hold great promise, challenges include high development costs, regulatory hurdles, battery limitations for electric aircraft, and global infrastructure needs. However, with ongoing research, investments, and global cooperation, the aviation industry is moving closer to achieving sustainable and smart air travel by 2050.

Conclusion

Recent aviation technology is transforming the skies with a focus on safety, sustainability, and passenger experience. From electric planes and biofuels to AI-driven systems and urban air mobility, the aviation industry is embracing innovation at an unprecedented pace. These advancements will not only make air travel more efficient but also play a vital role in addressing climate change, paving the way for a future where flying is greener, smarter, and more accessible.

R.Ranjithkumar,
IV- Mech

COLLEGE VISION & MISSION

VISION

“To become an internationally renowned Institution in technical education, research and development, by transforming the students into competent professionals with leadership skills and ethical values.”

MISSION

- ❖ Providing the best resources and Infrastructure.
- ❖ Creating Learner centric Environment and continuous –Learning.
- ❖ Promoting Effective Links with Intellectuals and Industries.
- ❖ Enriching Employability and Entrepreneurial Skills.
- ❖ Adapting to Changes for Sustainable Development.



Namakkal - Trichy Main Road, Thottiam, Trichy (Dt) 621 215, Tamilnadu.

Mob : 80125 05000, 80125 05011, 80125 05054 email : admission@kongunadu.org

www.kongunadu.ac.in