



Kongunadu

College of Engineering & Technology
[Autonomous]

NAMAKKAL – TRICHY MAIN ROAD, THOTTIAM

(Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai)

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

DEPARTMENT OF MECHANICAL ENGINEERING **ACADEMIC YEAR – 2023–2024**

MECH MAGAZINE

 Volume 03  Issue 02  July 2024



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)

PSO1: Professional skills: Students shall understand, analyze, design and develop integrated equipment, thermal devices and composite components.

PSO2: 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.

MECH **MAGAZINE**

CHIEF PATROS

Dr.PSK.R.Periaswamy

Chairman
Kongunadu Educational Institutions

ADVISORS

Dr. R.ASOKAN, Ph.D.,

Principal

Dr.D.Jagadeesh, Ph.D

Professor & Head /MECH

Dr.K.Periasamy, Ph.D

Professor / Mech

EDITORS

Mr.N.Kawin

Assistant Professor / MECH

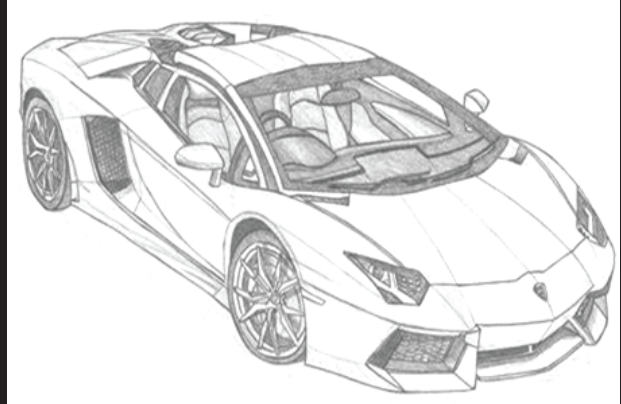
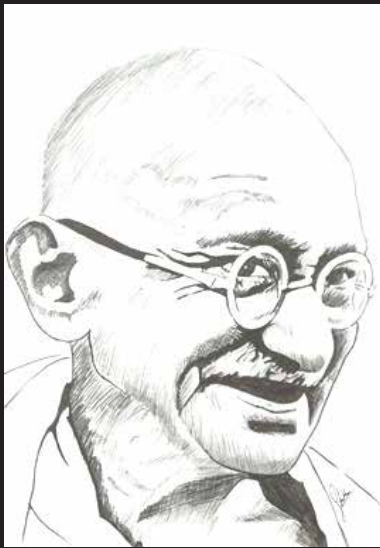
R.HARISHWAR

(IV –MECH)

K.BALAMURUGAN

(IV -MECH)

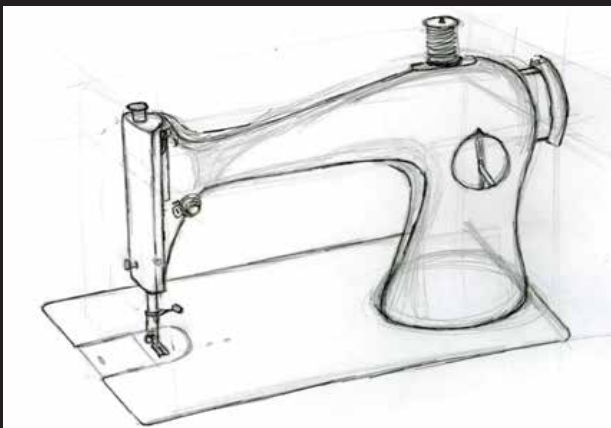
R.RAJESHKUMAR,
II YEAR – MECH



S.KISHORE,
III YEAR-MECH



B.SRINATH,
II YEAR – MECH



M.VIGNESH,
III YEAR-MECH

MECHANICAL LIFE

*In the city of wires and steel,
Where gears churn with silent zeal,
Mechanical hearts beat in rhythm,
In this world devoid of whims.
Robots hum with electric grace,
Their movements precise in every space,
No laughter echoes through the halls,
Only algorithms' steady calls.*

*In circuits deep, their thoughts entwine,
Binary whispers, a coded sign,
For them, no dawn, no twilight's gleam,
Just pixels flicker in their dream.
Yet in the silence, a yearning stirs,
A ghostly echo, a memory blurs,
Of a time when life was more than gears,
When hearts felt joy, not just cold fears.*

*In this mechanical symphony's strife,
Is there room for the spark of life?
Or are we destined to wires entwined,
Lost in the echoes of what's left behind?
For in the city of wires and steel,
Even robots may seek to feel,
A flicker of warmth, a touch of grace,
In this mechanical, electric place.*

EDUCATION

*In the halls where knowledge gleams,
Education weaves its timeless themes.
Books whisper secrets of ages past,
Wisdom's treasure, built to last.*

*In classrooms buzzing with eager minds,
Curiosity sparks and intellect finds
Paths to truths, both old and new,
Guiding hearts to ambitions true.*

*Teachers stand as beacons bright,
Igniting minds with guiding light.
Patience, passion in each word they teach,
Nurturing minds within their reach.*

*Through equations, stories, and history's tale,
Lies the power for dreams to prevail.
Education, a journey, winding and wide,
A beacon of hope, a limitless tide.*

*So cherish the lessons, both tough and grand,
For knowledge is the key to understand.
In the realm of learning, let us grow,
In the dance of education, may we forever flow.*



K.ABINOWPANDIAN,
III YEAR-MECH



K.HARINI,
II YEAR-MECH

கல்வி

கல்வி என்பது ஒளியாய் மிளிரும் நிலவு,
அறிவும் அன்பும் சேர்ந்து அளிக்கும் பொக்கிஷம்,
புத்துணர்வும், பண்பாடும் நீடிக்கும் பொருள்,
வாழ்வில் வெற்றி பெறும் வித்தியாசம், கல்வி.



A.MAHESH BOOPATHY,
III YEAR-MECH



கல்லூரி வாழ்க்கை

கல்லூரி வாழ்க்கை, சுவையான ஓர் அத்தியாயம்,
சிறகுகள் விரித்துப் பறக்க உந்துகிறது,
அறிவை ஆராய்ந்து, ஆளுமை வளர்க்கும் இடம்,
நண்பர்களின் சிரிப்பு, நினைவுகளின் தங்கிய ஓசை.



R.SARAVANAN,
III YEAR-MECH



MECHANICAL

M - **M**achine
E - **E**ngineering
C - **C**omponents
H - **H**ardware
A - **A**ssembly
N - **N**ewton's Laws
I - **I**nnovation
C - **C**ontrol
A - **A**nalysⁱs
L - **L**ubrication



K.SANTHOSHKUMAR,
II YEAR-MECH



EXAMINATION

E - **E**valuation
X - e**X**am
A - **A**ssessment
M - **M**easurement
I - **I**nquiry
N - **N**ervousness
A - **A**nalysⁱs
T - **T**esting
I - **I**nspection
O - **O**bservation
N - **N**ecessity



K.SANTHOSHKUMAR,
II YEAR-MECH



STUDENTS

S - Study
T - Time management
U - Understanding
D - Discipline
E - Exploration
N - Notes
T - Tenacity
S - Success

“**K.SANTHOSHKUMAR,**
II YEAR-MECH”

JOKES TRIP PLANNING

Student 1: "So, where should we go for our trip? Any suggestions?"

Student 2: "How about the library? It's the only place we can travel to different worlds without leaving our seats!"

“**K.HARIHARAN,**
III YEAR-MECH”

FUTURE

Friend 1: "Where do you see yourself in five years?"

Friend 2: "I don't even know where I see myself in five minutes. Let's just hope there's pizza involved!"

“**K.HARIHARAN,**
III YEAR-MECH”

COMPREHENSIVE GUIDE TO PREPARE FOR TNPSC EXAMS

Tamil Nadu Public Service Commission (TNPSC) exams are highly competitive and require focused preparation to succeed. Whether you're aiming for Group 1, Group 2, Group 4, or other TNPSC exams, following these steps will help you prepare effectively:

1. Understand the Exam Pattern and Syllabus

Each TNPSC exam has a specific pattern and syllabus. Familiarize yourself with the exam structure, number of papers, types of questions (objective or descriptive), and marking scheme. Obtain the latest syllabus from the official TNPSC website or notification.

2. Create a Study Plan

Develop a detailed study plan based on the TNPSC syllabus and exam pattern. Allocate sufficient time for each subject or section, ensuring balanced coverage. Set realistic study goals and milestones to track your progress effectively.

3. Gather Study Materials

Collect reliable study materials such as TNPSC-specific books, previous years' question papers, and reference guides. Utilize online resources, including official TNPSC websites and portals, for updated information and practice tests. Consider joining reputable coaching institutes or online courses for structured guidance.

4. Focus on TNPSC Specific Subjects

TNPSC exams typically include sections on General Studies, Aptitude & Mental Ability, Tamil Language (for certain exams), and optional subjects depending on the exam type. Allocate time according to the weightage of each subject and focus on understanding concepts thoroughly.

5. Practice Regularly

Regular practice is essential for success in TNPSC exams. Solve mock tests, practice papers, and previous years' question papers to improve speed and accuracy. Analyze your performance to identify strengths and weaknesses, and adjust your study plan accordingly.

6. Current Affairs and General Knowledge

Stay updated with current affairs, particularly those relevant to Tamil Nadu state and national importance. Read newspapers, magazines, and reliable online sources regularly. Maintain notes of important events and issues for quick revision closer to the exam date.

7. Improve Time Management

Time management is critical during TNPSC exams. Practice solving questions within the stipulated time frame to enhance speed and accuracy. Learn to prioritize questions based on difficulty level and maximize your score by focusing on easier questions first.

8. Revision Strategy

Plan regular revisions of the entire syllabus to reinforce learning and retain information. Create concise notes, mind maps, or flashcards for quick revision before the exam. Focus more on revising weaker areas and topics where you face difficulty.

9. Health and Well-being

Maintain a healthy lifestyle during your preparation period. Eat nutritious food, exercise regularly, and get adequate sleep to stay physically and mentally fit. Manage stress through relaxation techniques such as meditation or yoga.

10. Mock Tests and Simulated Exams

Take advantage of mock tests and simulated exams offered by coaching institutes or available online. These simulate the exam environment and help you familiarize yourself with the actual exam conditions, thereby boosting your confidence.

“**P.THAVASI,**
IV YEAR - MECH”

AI IN **ROBOTICS**

Artificial Intelligence (AI) plays a crucial role in enhancing the capabilities and functionalities of robotics in various domains. Here are some significant ways AI is utilized in robotics:

1. Autonomous Navigation and Path Planing

Simultaneous Localization and Mapping (SLAM):

AI algorithms enable robots to create maps of unknown environments while determining their own location within these maps in real-time.

Path Planning:

AI helps robots navigate efficiently through complex environments by planning optimal paths while avoiding obstacles and adhering to constraints.

2. Object Recognition and Manipulation

Computer Vision:

AI-powered vision systems enable robots to recognize and identify objects in their surroundings using techniques like image processing, deep learning, and neural networks.

Manipulation:

AI algorithms control robotic arms and grippers for precise object manipulation tasks, such as assembly line operations or handling delicate materials.

3. Natural Language Processing (NLP) and Human-Robot Interaction

Voice Recognition:

AI-driven NLP allows robots to understand and respond to human commands and queries, facilitating intuitive human-robot communication.

Gesture Recognition:

AI enables robots to interpret human gestures and body language, improving interaction in collaborative settings.

4. Machine Learning for Adaptive Behavior

Reinforcement Learning:

AI techniques like reinforcement learning enable robots to learn from experience and improve their decision-making based on rewards and penalties.

Adaptive Control:

AI algorithms optimize robot control systems by continuously adjusting parameters based on environmental changes and task requirements.

5. Predictive Maintenance and Fault Diagnosis

Predictive Analytics:

AI algorithms analyze data from sensors and actuators to predict potential failures in robotic systems, enabling proactive maintenance and minimizing downtime.

Anomaly Detection:

AI helps in identifying deviations from normal operation, facilitating early diagnosis of faults for timely intervention.

6. Collaborative Robotics (Cobots)

Safe Human-Robot Collaboration:

AI ensures safe interaction between humans and robots by implementing advanced sensors, collision avoidance algorithms, and adaptive control strategies.

Task Sharing:

AI enables robots to collaborate with human workers in shared workspaces, assisting with repetitive or physically demanding tasks.

7. Robotics in Healthcare and Assistive Technologies

Robotic Surgery:

AI enhances precision and efficiency in surgical procedures through robotic systems capable of performing complex maneuvers guided by AI algorithms.

Assistive Robots:

AI-powered robots assist individuals with disabilities or elderly people by providing physical support, monitoring health parameters, and offering companionship.

8. Environmental Monitoring and Agriculture

Autonomous Vehicles:

AI-driven robots and drones monitor and analyze agricultural fields, enabling precise crop management and pest control strategies based on real-time data.

Natural Disaster Response:

AI-powered robots assist in search and rescue operations by navigating hazardous environments and locating survivors.

“**A.KRISHNAN,**
II YEAR-MECH”

INTEGRATION OF MECHANICAL ENGINEERING IN THE MEDICAL FIELD

Mechanical engineering, traditionally associated with machinery and industrial applications, is increasingly playing a pivotal role in revolutionizing the medical field. From designing advanced prosthetics to enhancing surgical procedures, here's how mechanical engineering is making significant contributions to healthcare:

1. Prosthetics and Orthotics

- Mechanical engineers collaborate with medical professionals to develop prosthetic limbs and orthotic devices that enhance mobility and improve quality of life for amputees and individuals with musculoskeletal disorders. Key innovations include.
- Customization: Utilizing advanced materials and 3D printing technologies to create personalized prosthetics tailored to individual patient needs.
- Sensor Integration: Incorporating sensors and actuators for enhanced functionality and real-time feedback, improving control and comfort.

2. Biomechanics and Rehabilitation

Mechanical engineering principles are applied to analyze human movement, biomechanics, and rehabilitation strategies, facilitating:

- **Gait Analysis:** Using motion capture systems and computational modeling to study walking patterns and optimize rehabilitation protocols.
- **Exoskeletons:** Designing robotic exoskeletons to assist patients with mobility impairments, enabling them to regain independence and strength.

3. Medical Imaging and Diagnostic Devices

Mechanical engineers contribute to the development of advanced imaging technologies and diagnostic devices that aid in early detection and treatment planning:

- MRI and CT Scanners: Improving the design of imaging systems for higher resolution and faster scanning times, enhancing diagnostic accuracy.
- Ultrasound and Endoscopic Tools: Innovating minimally invasive surgical instruments and imaging probes to enable precise interventions with reduced patient discomfort.

4. Surgical Robotics and Minimally Invasive Techniques

Mechanical engineering innovations have paved the way for surgical robotics and minimally invasive procedures, offering:

1. Prosthetics and Orthotics

- **Precision Surgery:** Developing robotic systems that provide surgeons with enhanced dexterity and precision, reducing surgical trauma and recovery times.
- **Microsurgical Tools:** Designing miniature instruments and micro-robots for delicate procedures such as neurosurgery and ophthalmology.

5. Medical Device Design and Safety

Mechanical engineers ensure the design and safety of medical devices through rigorous testing and compliance with regulatory standards:

- **Human Factors Engineering:** Considering ergonomic principles and user interface design to optimize device usability and patient safety.
- **Biocompatibility:** Selecting materials and coatings that are compatible with biological tissues to minimize adverse reactions and improve device longevity.

6. Bioengineering and Tissue Engineering

Collaborating with biologists and clinicians, mechanical engineers contribute to advancements in bioengineering and tissue engineering:

- **Organ and Tissue Printing:** Developing bio printing technologies to fabricate artificial organs and tissues for transplantation and regenerative medicine.
- **Biomaterials:** Designing scaffolds and implants that promote tissue regeneration and integration within the body's natural environment.

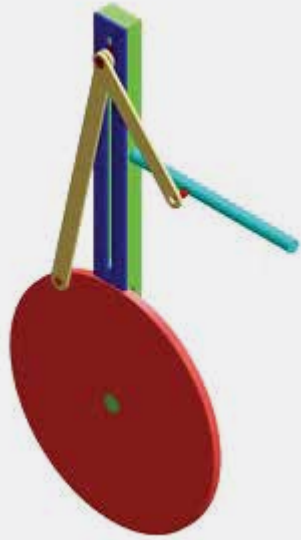
7. Healthcare Infrastructure and Medical Equipment

Mechanical engineering expertise extends to optimizing healthcare facilities and equipment, including:

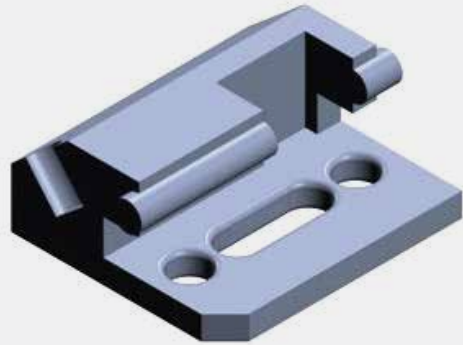
- **HVAC Systems:** Designing efficient heating, ventilation, and air conditioning systems to maintain optimal indoor air quality and patient comfort.
- **Medical Equipment Maintenance:** Implementing predictive maintenance strategies for medical equipment to ensure reliability and minimize downtime.

“**M.BALAMURUGAN,**
III YEAR-MECH”

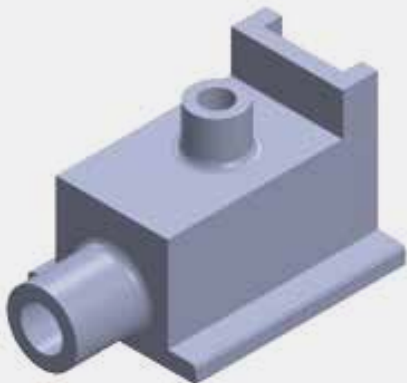
PART AND ASSEMBLY DRAWING



***V.VISHVESHWARAN,
III YEAR-MECH***



***R.THENRAMSELVAN,
III YEAR-MECH***



***R.RAGUL,
II YEAR-MECH***



***M.M.JAGAN,
III YEAR-MECH***

PART AND ASSEMBLY DRAWING



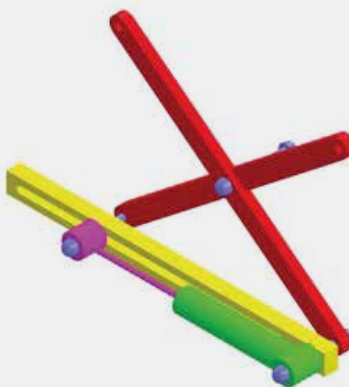
K.BHARATHKUMAR,
III YEAR-MECH



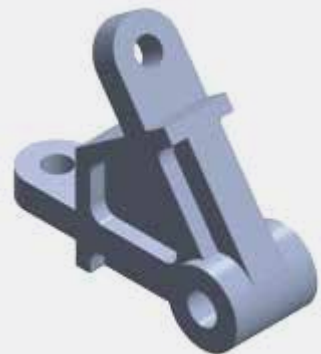
A.KRISHNAN,
II YEAR-MECH



P.VIGNESH,
IV YEAR - MECH



M.DHARANIKUMAR,
III YEAR-MECH



P.SOMASUNDARAM,
III YEAR - 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.

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.



Kongunadu

College of Engineering & Technology
[Autonomous]

GET IN TOUCH



+91 80125 05000
+91 80125 05011
+91 80125 05054



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



admission@kongunadu.org



www.kongunadu.ac.in