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# Kongunadu

College of Engineering & Technology
[Autonomous]

(Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai,
Accredited by NBA(CSE,ECE,EEE & MECH),
Accredited by NAAC with B++ Grade, Recognized by UGC with 2(f) & 12(B) and ISO 9001:2015 Certified Institution)
Namakkal - Trichy Main Road, Tholurpatti (P.O.), Thottiyam (TK), Trichy (Dt.) - 621 215.

## DEPARTMENT OF AGRICULTURAL ENGINEERING

# AGRITECH MAGAZINE

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## About the department

The Department of Agricultural Engineering was established in the year 2021, offers a 4 years B.Tech – Agricultural Engineering course with an intake of 60 students. The department has well experienced and highly qualified faculty members, excellent infrastructure, ultra-modern buildings, well equipped laboratory facilities and career guidance. The department is established to develop professionals with the knowledge of modern farming, irrigation, farm mechanization, soil and water conservation, harvesting, renewable energy and crop production with IoT technology. The department is focusing on widening the practical knowledge of the students thus encouraging them to solve different practical difficulties land holdings. The practical knowledge gained by them during practical field work and industrial visit has been added advantage for new technology and innovations. The department leads in the transfer of agricultural engineering and technology education to the younger generation on the right path to fulfill the career in agriculture and allied sectors.

## PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

✣ **PEO I** : Graduates shall become agricultural professionals with specialization in irrigation, farm equipments, post harvest and renewable energy along with automation.

✣ **PEO II** : Graduates shall able to design and develop optimistic products for the benefits of farmer and society.

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

## PROGRAM SPECIFIC OUTCOMES (PSOs)

✣ **PSO 1** : Professional skills: Students shall understand, analyze, design and develop agricultural equipments to meet the requirements of farmer and industry.

✣ **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 knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.

**2. Problem analysis** : Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4).

**3. Design/development of solutions** : Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5).

**4. Conduct investigations of complex problems** : Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).

**5. Engineering tool usage** : Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6).

**6. The Engineer and The World** : Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).

**7. Ethics** : Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)

**8. Individual and Collaborative Team work** : Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

**9. Communication** : Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences.

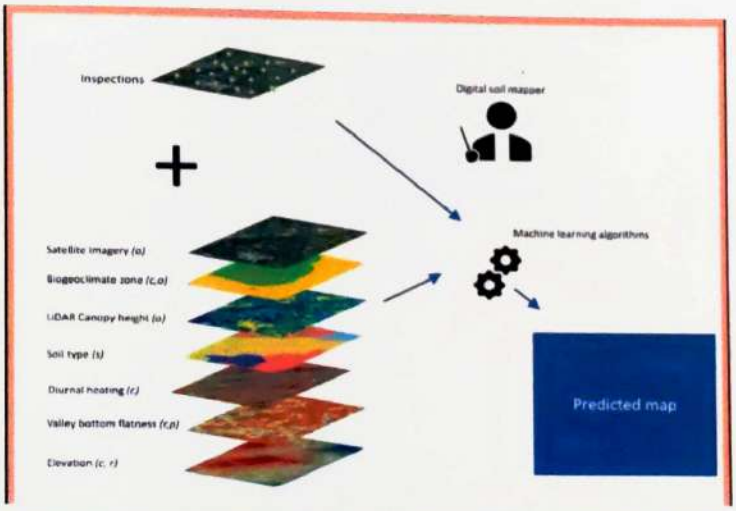
**10. Project Management and Finance** : Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.

**11. Life-Long Learning** : Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8).

# TECHNICAL TOPIC

## 1. Digital Soil Mapping

Digital Soil Mapping (DSM) is an advanced, data-driven approach used to create detailed and accurate maps of soil properties and soil classes by integrating field observations with digital technologies. It combines soil sample data, remote sensing imagery, GIS, GPS, terrain attributes, and environmental variables such as climate, vegetation, and land use to predict the spatial distribution of soil characteristics like texture, organic carbon, pH, moisture, and nutrient status. Using statistical models, machine learning, and geostatistical techniques, DSM provides continuous soil information at high spatial resolution, which is difficult to achieve through conventional soil surveys alone. This technology supports precision agriculture by enabling site-specific soil management, optimized fertilizer application, efficient irrigation planning, and improved land-use decision making.




By
**Mahima P**

## 2. Data & Digital Agriculture

Data and digital agriculture represent a modern transformation of farming where digital technologies and data analysis are used to improve agricultural productivity, sustainability, and decision-making. In this system, large amounts of data are gathered from various sources such as soil and weather sensors, satellite imagery, drone surveillance, mobile apps, and automated machinery. This data is then processed using digital tools, cloud platforms, and analytics software to provide farmers with accurate insights about soil conditions, crop growth stages, pest pressure, irrigation needs, and overall farm performance. Digital agriculture allows farmers to monitor their fields in real time, detect problems early, and apply resources like water, fertilizers, and pesticides only where they are needed, minimizing costs and environmental impact. It also supports farm management by offering tools for yield prediction, market forecasting, supply chain tracking, and financial planning. With digital platforms, farmers can store records, compare yearly performance, and make long-term strategies based on reliable data. By integrating smartphones, GPS-enabled equipment, AI-based decision support systems, and automated devices, digital agriculture creates a smart farming ecosystem that enhances efficiency, reduces risks, improves climate resilience, and helps farmers achieve higher productivity with sustainable resource use.


By
**DEEPASHREE S**

## 3. Supply Chain Tech

Supply chain technology refers to the use of advanced digital tools and intelligent systems to manage, track, and optimize the movement of goods from producers to consumers. In agriculture and other industries, supply chain tech helps streamline every stage, including production, processing, storage, transportation, and distribution. Technologies like Internet of Things (IoT) sensors, GPS tracking, blockchain, artificial intelligence (AI), robotics, and cloud-based platforms allow real-time monitoring of inventory levels, product quality, and logistics performance. These tools help identify delays, reduce wastage, prevent spoilage, and improve coordination between farmers, manufacturers, retailers, and consumers. Blockchain ensures transparency and traceability by recording every step of the product's journey, which builds trust and reduces fraud. AI-powered systems can predict demand, optimize routes, and manage warehouse operations efficiently, lowering costs and speeding up deliveries. Automated robots and drones support packaging, sorting, and stock management, increasing accuracy and reducing labor burdens. With the help of supply chain technology, businesses can respond faster to market changes, minimize errors, maintain product safety, and create a more efficient, resilient, and sustainable supply chain network.


By

**KALAIVANAN R**

## 4. Conservation tillage and zero tillage

Conservation tillage and zero tillage are modern agricultural practices aimed at improving soil health, conserving moisture, and reducing production costs. Conservation tillage involves minimal soil disturbance while retaining crop residues on the soil surface, which helps reduce soil erosion, improve organic matter content, enhance soil structure, and promote beneficial soil microorganisms. It also improves water infiltration and reduces evaporation losses, making it especially useful in rainfed and drought-prone areas. Zero tillage, a key form of conservation tillage, eliminates plowing entirely and allows direct sowing of seeds into undisturbed soil using specialized seeddrills. This practice reduces fuel and labor requirements, shortens the time between crops, lowers greenhouse gas emissions, and helps maintain soil carbon. Both systems contribute to sustainable agriculture by increasing resource-use efficiency, maintaining long-term soil fertility, and improving crop productivity while minimizing environmental impact.


By

**MADHAVAN S**

# PROJECT

## 1. DEVELOPEMENT OF PAPER PULP FROM SISAL AND BANANA FIBER WITH RICE STRAW

The development of paper pulp from sisal, banana fiber and rice straw, utilizing agricultural residues as an alternative to conventional wood-based pulp. The objective of the project is to promote sustainable and eco-friendly handmade paper production using locally available natural fibers. The fibers were extracted, cleaned, treated and blended in different proportions to form pulp sheets. The fabricated paper samples were tested for weight, thickness and bulk density to evaluate their physical properties. The results showed that the sample weights ranged from 2.5 g to 5 g, with thickness varying between 0.25 mm and 0.31 mm. The bulk density of the samples ranged from 9.25 g/cm$^3$ (N4-1) to 17.85 g/cm$^3$ (N6-2), indicating that fiber composition and sheet compactness influence the strength and quality of paper. Samples with higher sisal and banana fiber content exhibited better bonding and uniform surface texture compared to those with more rice straw. The findings confirm that these agricultural wastes can be effectively utilized for sustainable paper pulp production, reducing environmental impact, deforestation and promoting value addition to agro-residues.

By

**YAZHINI M, MALINI V, SIVARANJANI R**

## 2. DESIGN AND FABRICATION OF POTATO HARVESTING MACHINE

This project focuses on design and develope of potato harvesting machine with minimal crop damage. The design integrates a DC motor-driven mechanism, chain and spur gear arrangements and a bucket collection system for efficient soil separation and potato lifting. A handlebar with steering attachments provides easy maneuverability and control during operation. The project promotes sustainable agricultural mechanization by potato harvesting machine to reduce manual labor and improve harvesting efficiency. The machine is compact, cost-effective and suitable for small and mediumscale farmers.

By
**MANIGANDAN M, ARTHI M, MAHIMA P**

## 3. A SOLAR POWERED RHIZOME PLANTING MACHINE FOR SMALL LAND HOLDERS

A Solar Powered Rhizome Planting Machine for Small Land Holders aims to design and develop an efficient, eco-friendly and low-cost planting machine suitable for small and marginal farmers. Traditional rhizome planting methods are laborintensive, time-consuming and often result in uneven planting depth and spacing. To overcome these limitations, a portable solar powered planting machine was developed that utilizes renewable energy to operate its metering and drive mechanisms. The machine consists of a solar power unit, chain drive system, metering unit, hopper and supporting frame designed for easy handling and field operation. Solar energy is used to power the motor, which drives the chain mechanism for uniform seed or rhizome placement. Field tests were conducted under both load and no-load conditions to evaluate performance, efficiency and ease of operation. The results showed that the machine provided accurate spacing, reduced labor effort and improved planting uniformity.

By **NALINI S, VINITHA C, LAKSHMINARASIMMALU M**

# POETRY

## A FARMER'S PRAYER

Bless me with friends who come when I call
Land that's fertile so my crops will grow tall
Reliable equipment that doesn't breakdown
Weather that's perfect sunup to sundown
A bountiful harvest I will not regret

By
**PRAKASH R**

## கல்லூரி வாழ்க்கை

புத்தகங்களும், பாடங்களும்
புதிதாய் பல கனவுகளும்
நட்பின் கரங்கள், நேசங்கள்
கல்லூரி வாழ்க்கை களிப்பாய் பல நினைவுகள்.
பயணங்கள் பல, பாதைகள் பல
எதிர்காலம் என்னும் கனவு சிறகுகள்
நாளைய நம்பிக்கை, இன்றைய பாடங்கள்
கல்லூரி வாழ்க்கை ஒரு பொன்னான காலம்.
வகுப்பறைகள் பல, ஆசிரியர்கள் பல
பலவித அனுபவங்கள், புதிய பல உலகம்
கவலைகள் மறந்த, மகிழ்ச்சிகள் பல
கல்லூரி வாழ்க்கை அழகிய கவிதை.

By
**ROSHINI R**

## DRAWINGS

By
RITHIKA R

By
MANOSRI V

By
DERNISHA M

By
MANOSRI V

## CRAFT WORK

By
ISWARIYA G

By
DERNISHA M

By
PRIYADHARSHINI RV

By
AKSHAYA M

## PHOTOGRAPHY

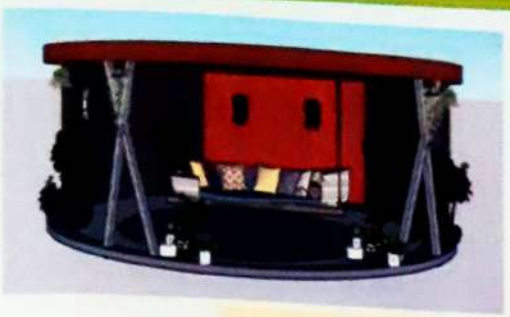
By
JAISHREE P

By
KAVIYA S

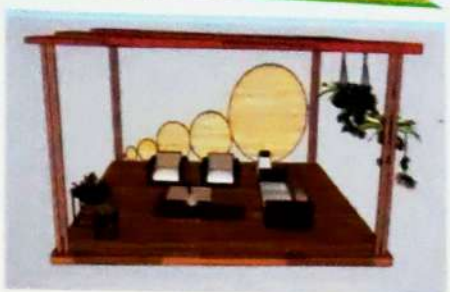
By
SHRUTHISHREE S

By
SUSHMITHA N

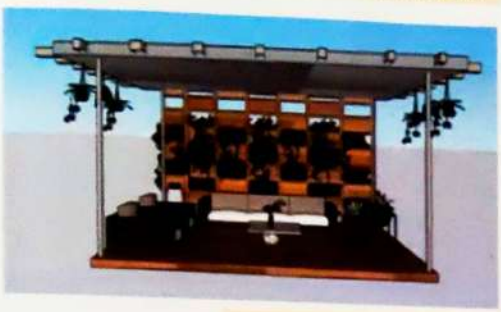
# AUTOCAD AND SKETCH UP DESIGN SKETCH UP DESIGN



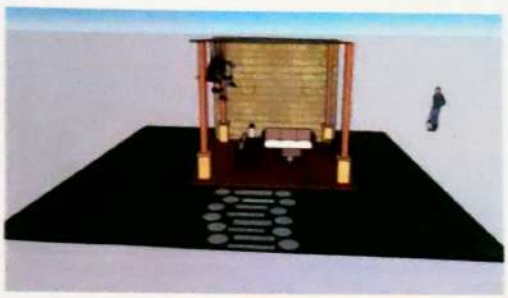
By
RAVUTHAN P



By
REJIL S

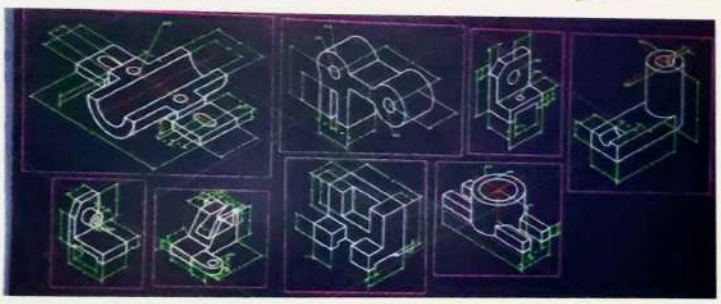


By
NAVEENA C

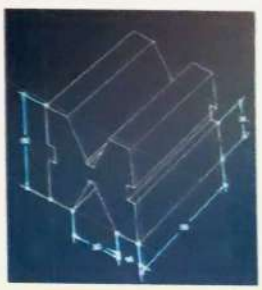


By
RITHIKA R

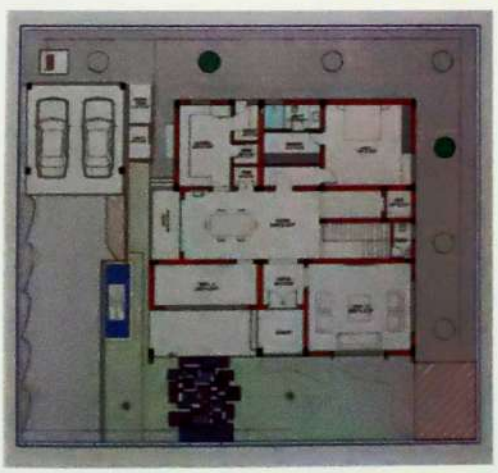
## AUTOCAD



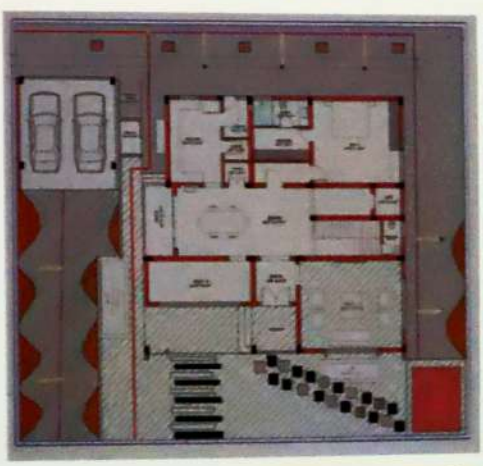
By
MANASHWINI MY



By
AKSHAYA M



By
ARTHI X



By
RITHIKA R

## COLLEGE VISION & MISSION

### • VISION

"To become 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 Change for sustainable Development.

## DEPARTMENT VISION & MISSION

### • VISION

"To produce excellent professionals in agricultural engineering through quality education, leadership skills and ethical values to serve the society."

### • MISSION

- Providing in-depth knowledge and applications of agricultural machineries and associated process with embedded technology.
- Developing multidisciplinary learning environment with leadership skills..
- Impart training in entrepreneurial and life skills for enhancing employability.

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