



Hindusthan

College of Engineering and Technology

An Autonomous Institution



DEPARTMENT OF CIVIL ENGINEERING

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Magazine
May 22

TABLE OF CONTENTS

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Mr. Dugin R

Ms. Preethi R

Mr. Ashiq L

4	VISION AND MISSION OF THE DEPARTMENT
5	PEO & PSO
6	RECENT TECHNOLOGY
11	GLIMPSES OF STUDENTS TALENTS



VISION OF THE DEPARTMENT

To be recognized globally for pre-eminence in Civil Engineering education, research and service.

MISSION OF THE DEPARTMENT

- **To impart scientific and technical knowledge for professional practice, advanced study and research in Civil Engineering.**
- **To equip the students with ingenious leadership and organizational skills for a successful professional career.**
- **To inculcate professional and ethical responsibilities related to industry, society and environment.**

PROGRAM EDUCATIONAL OBJECTIVES (PEO).

To produce graduates with the ability to

- **Excel as practicing engineers, academicians and researchers with a comprehensive knowledge in Civil Engineering.**
- **Play a significant role as team players and leaders in challenging environments for nation's infrastructure development, environmental protection and sustainability.**
- **Uphold professional and ethical responsibilities as engineers, consultants and entrepreneurs while addressing the demands of the society.**

PROGRAMME SPECIFIC OUTCOMES (PSO).

The graduates will be able to:

- **Apply their engineering knowledge, communication skills, professional and ethical principles to solve problems in civil engineering and contribute to the infrastructure development in a sustainable way.**
- **Use their engineering background to excel in competitive exams for advanced study, research and professional career.**

IOT INTEGRATION WITH CIVIL ENGINEERING

Not only has IoT expanded to the retail and healthcare sectors, IoT is gaining increasing momentum in civil engineering as well. Economic analysts expect the global market for IoT will reach \$1.5 trillion by 2030, which will reflect exponentially more usage than today. About 20 billion interactive devices are currently connected to the internet. Civil engineering, which involves design, construction, and maintenance for public and private projects, already plays a huge role in this evolution. Renovation of infrastructure elements such as roads, bridges, and airports will be the norm in this ongoing digital transformation.

Prior to the industrial revolution, the terms “civil engineer” and “architect” were generally synonyms that referred to the same profession, as usage was based on geography. During the technological age, a civil engineer is someone who resolves problems in society with scientific or technological solutions through project management. Many of today’s civil engineers work for construction companies, helping with project planning.

The construction industry has many reasons to integrate with IoT technology. It may involve construction of smart buildings that are embedded with countless sensors or it can even be used for construction companies to monitor their own projects in real time. Going more digital empowers any type of organization, as it can collect data on its operations to determine how to achieve greater production efficiency.

Civil Engineering Applications for IoT Technology

Adopting proactive steps toward preventative maintenance - The civil engineering industry is working toward reducing waste and enhancing efficiency. IoT devices give civil engineers the data they need for evaluating system strengths and vulnerabilities. Detecting and fixing technical problems early is the best path for achieving preventative maintenance.

Construction management streamlining - Project management is all about monitoring supplies, labor, and other factors that affect meeting deadlines on time. Decision-makers can analyze real-time data on supply chain inventory and prices to determine building strategies as the project unfolds. IoT technology can also be used to track specific workers, supplies, vehicles, or equipment.

Agility, accuracy, and transparency of automation - Despite the steady transition to a paperless society, construction projects still involve plenty of handwritten forms and paperwork. Automation technology resolves the problem of when paperwork piles up too high, as cloud tools add data automatically to continuous reports on expenses, scheduling and progress. By making project data immediately available to stakeholders, construction firms are becoming more reliable and accountable to project funders.

Project safety improvements - Since construction sites have many dangerous elements, it's crucial for project managers to be informed immediately when an injury or property damage occurs. IoT sensors and smart cameras can collect instant data on site conditions, including security breaches. Individual workers can be monitored at all times through a shared connection to ensure safety as well as productivity.

More intelligent IT support - IT support only gets better the more relevant data it collects. Ultimately, the IoT revolution is all about putting value and trust in analytics, which can then help you refine your operation by weeding out wasteful inefficiencies. The more you're able to identify problems in your production process, the faster you'll be able to resolve them using your own analytical skills or with the help of AI technology.

Conclusion Adoption of IoT in civil engineering has helped accelerate society's digital transformation. Integrating data sensors in construction projects help avoid costly mistakes and improve the final product. Essentially, construction companies that invest in IoT today will have significant operational advantages over competitors of the future.

DRONES IN CONSTRUCTION

While drones in construction aren't new, construction companies are adopting them at a faster rate than ever before. Whether they are being used to conduct land surveys or to keep track of equipment, drones have proved invaluable to the field.

Drones also have direct benefits to the construction lifecycle. Their capabilities allow them to cut costs, time, risk, and labor, all while improving workflow, accuracy, communication, and efficiency. All these lead to more confidence and certainty when working on a construction project.

While the impact of drones in the construction industry is developing, they are already revolutionizing the sector and changing the way construction projects are handled. As long as the technology is able to pass federal aviation and zoning hurdles, it is safe to say that the commercial drone is here to stay.

As technology advances, drones will be able to take on more construction tasks than ever before. In 2020, Kaizen Aerial Solutions introduced their new xFold industrial drone capable of lifting up to 1,000 pounds. This drone can transport construction materials and other heavy loads on worksites thanks to its high lifting capacity. It also comes with optional attachments like 3D mapping sensors, robotic arms, and fire-extinguishing ball droppers.

Drone technology is advancing in other areas as well. In the future, drones will likely be able to direct and guide autonomous vehicles. Amazon and other manufacturers have tested systems that pair drones with self-driving cars and delivery trucks, and similar technology could aid in transporting building materials and directing construction vehicles.

Drones' current capabilities allow them to cut costs, time, risk, and labor while improving workflow, accuracy, communication, and efficiency. If these technologies are implemented on a large scale in the future, they will only further streamline the construction life cycle.

While the impact of drones in the construction industry is still developing, they are already revolutionizing the sector and changing the way construction projects are handled. As long as the technology is able to pass federal aviation and zoning hurdles, it's safe to say that the commercial drone is here to stay.

CONSTRUCTION ROBOTICS

The construction sector is one of the largest in the global economy. However, it is one of the slowest to start the path towards automation and digitization and, therefore, the integration of robotics in construction has been late compared to other sectors. This is due to multiple factors such as the cost of labor or the lack of planning in the processes.

Increased accuracy, significantly increased productivity, reduced errors, meeting deadlines, reduced number of accidents and reduced costs are just some of the improvements that robotics brings to the construction industry.

These are some applications of robotics in the construction industry :

- Prediction of required tasks.
- Evaluation of the progress of a project.
- Early detection of possible errors.
- Automation of dangerous tasks for the operators.
- Surveillance and inspection tasks.

Examples of construction robotics R&D projects:

1. Brick Laying Robots

Semi-Automated Masonry (SAM) System

The SAM System was developed by Construction Robotics and is intended to work with a mason in order to reduce costs, increase productivity and increase the quality of work. The system eliminates the strenuous work by lifting the brick, applying mortar, and placing each brick in place. The mason is responsible for ensuring accurate placement of the bricks, cleaning up excess mortar, and overseeing the overall project is completed correctly.

Construction Robotics also makes the MULE (Material Unit Lift Enhancer) to help lift and place heavy material on the jobsite, helping improve productivity and safety. Both SAM and MULE robots have been used to complete a number of projects from hotels and offices to retail stores and university buildings.



CONSTRUCTION ROBOTICS

Dusty Robotics,

Theometrics

Theometrics' layout robot can use CAD drawings or BIM models to navigate a construction site to do layouts and measurement tasks.



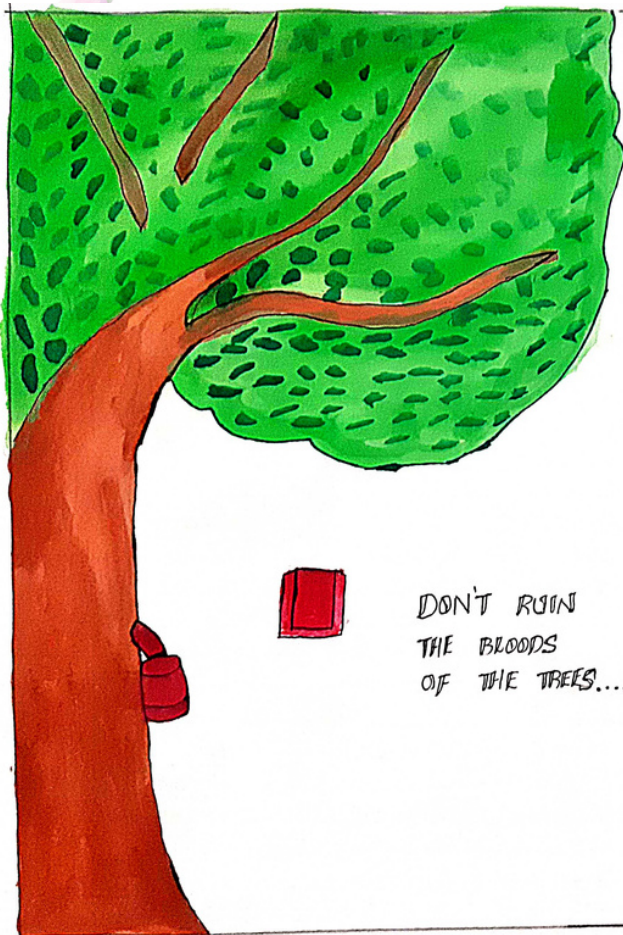
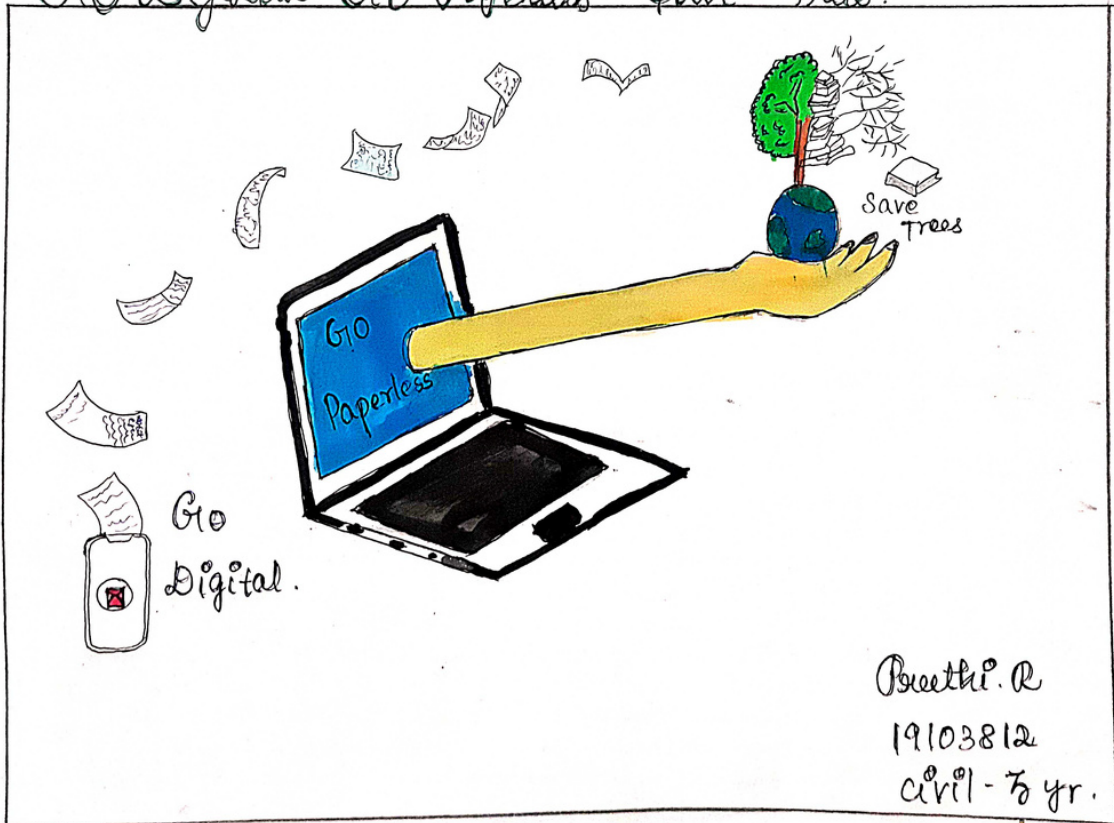
Demolition Robots

There are a number of equipment manufacturers that supply the construction industry with remote-controlled demolition robots including Brokk, Finmac, and Husqvarna.



GLIMPSES OF STUDENTS TALENTS

Go Digital Go Paperless Save Trees.



DON'T RUIN
THE BLOODS
OF THE TREES....



GO DIGITAL,
GO PAPER FREE
SAVE TREES.

20103027
H. NIVETHA
II - CIVIL

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Poster of Students



RS RECYCLABLE PLASTIC CONSTRUCTION MATERIALS

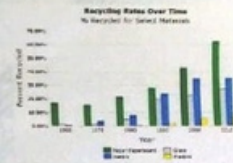
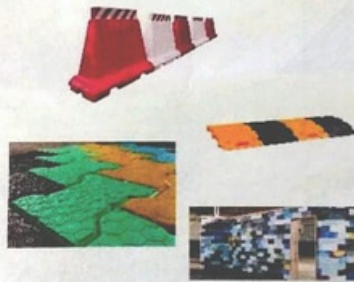
Recycling plastics is helping to save energy and landfill space. Recycled plastics are used in new building and construction applications.

ADVANTAGES

- More durable.
- Cost effective.
- Long life.
- Ecofriendly.
- Zero waste

OUR MATERIALS

- ROOFING TILES
- PLASTIC BRICKS
- DIVIDERS
- ROAD SIDE FENCINGS
- INTERLOCKING BLOCKS



FOR MORE DETAILS PLZ CONTACT
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SAHIL ZAHOR 6005623045



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CIVIL ENGINEERING



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CARPENTRY ROOFING SIDING FLOORING AND MORE REPAIR RENOVATION

EFFECTIVE TELE-CONSULTATION APPLICATION FOR FARMERS TO FACILITATE AGRICULTURE


Provide consultation to the farmers to create a better space for communication with customers

Consultation for Farmers

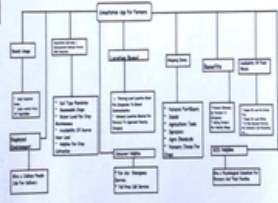
- Seasonable Crops
- Water Level for crop maintenance
- Availability of sources
- Helpline for crop care

Shopping Items

- Natural Fertilizers
- Seeds
- Agriculture Tools
- Sprayers
- Agro Chemicals
- Nursery Items for Crops



Scheme of Work



Prevention of Farmers from Suicide


Conduct awareness program among farmers

Results

Create better income prospects for farmers by providing better consultation

Benefits

- Crops giveaway by farmers to companies directly
- Selling the products to near shops
- Create employment for people
- Farmers could directly sell their without any intermediate brokerage
- Tender contract
- Consultancy for farmers
- Knowing daily price of vegetables, fruits etc.




Farming is not just a job. It's a way of life

Roof Cooling Technique Using Cooling Tiles

Introduction

A cool roof is designed to reflect more sunlight than a conventional roof, absorbing less solar energy. This lowers the temperature of the building just as wearing light-colored clothing keeps you cool on a sunny day.



Sizes and Thickness

300 x 300 mm
600 x 600 mm


Thickness 9 to 10 mm

Look

Elegant White Marble Finish

Benefits

- Comfort and cooling inside
- Conforms to green building norms
- Reduces Electricity bills
- Near zero heat condition
- Easy to clean and maintain
- Reduces AC/Fan usage



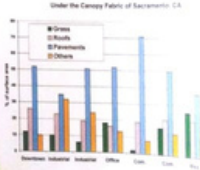
White Roofs

- Sacramento: 80% in a house, 35% in two school buildings
- Florida: 10%-43% in several houses, average 18%
- California and Florida: 1%-20% in several commercial buildings

Advantages

- Reduces the surface temperatures by upto 20°
- Easy to install
- Lightweight and Strong

Under the Canopy Policy of Sacramento, CA



B.Dhayanantha Selvan - 19103469
U.Harish Prem - 19103468
B.Kishore - 19103467
A.G.Santhosh - 19103444

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Poster of Students

LUXURY ZERO ENERGY BUILDING

OEB

A comfortable home living for you

Exclusive Features

- Great Community
- World-Class Architecture
- First-Rate Wood Quality
- Modern Open Kitchen
- Spacious Carport
- Swimming Pool

problems you are facing

- power cut
- water problem
- cylinder gas problem
- drainage problem

ONE SOLUTION OEB

SOLAR ENERGY ELECTRICAL STOVE WATER FILTRATION

MAADHAREY

SOFTWARE APPLICATION

AN APP TO REDUCE THE STRESS OF MOTHERS

USER-FRIENDLY

HIGH SNACK RECIPES

- CUSTOMIZED WITH TASTES OF FAMILY MEMBERS

CAN BE MADE WITH

PYTHON HTML

WEED TO WEALTH

PROBLEM

Water hyacinth is an aquatic weed in the water bodies which pollute and blocked the flow of water. It is difficult to control as they are vigorous growers known to double their population in two weeks.

SOLUTION

As this plant is cellulose-rich, it can potentially be used as an alternative source of material for paper. We can get dual benefits, reducing the use of trees for paper production and managing the enormous plant waste by converting it into a useful product paper.

METHODOLOGY

Water hyacinth → Harvested → Washed → Pulped → Cooked → Pulp → Handmade paper → Dried paper

PRODUCT

Handmade paper

TESTS TAKEN

The average bursting strength of the product is 70 to 125 KPa for nominal paper 70 to 140 KPa. The average tensile strength of product is 0.975 KN/m for nominal paper its ranges from 0.9 to 1.2 KN/m

CONCLUSION

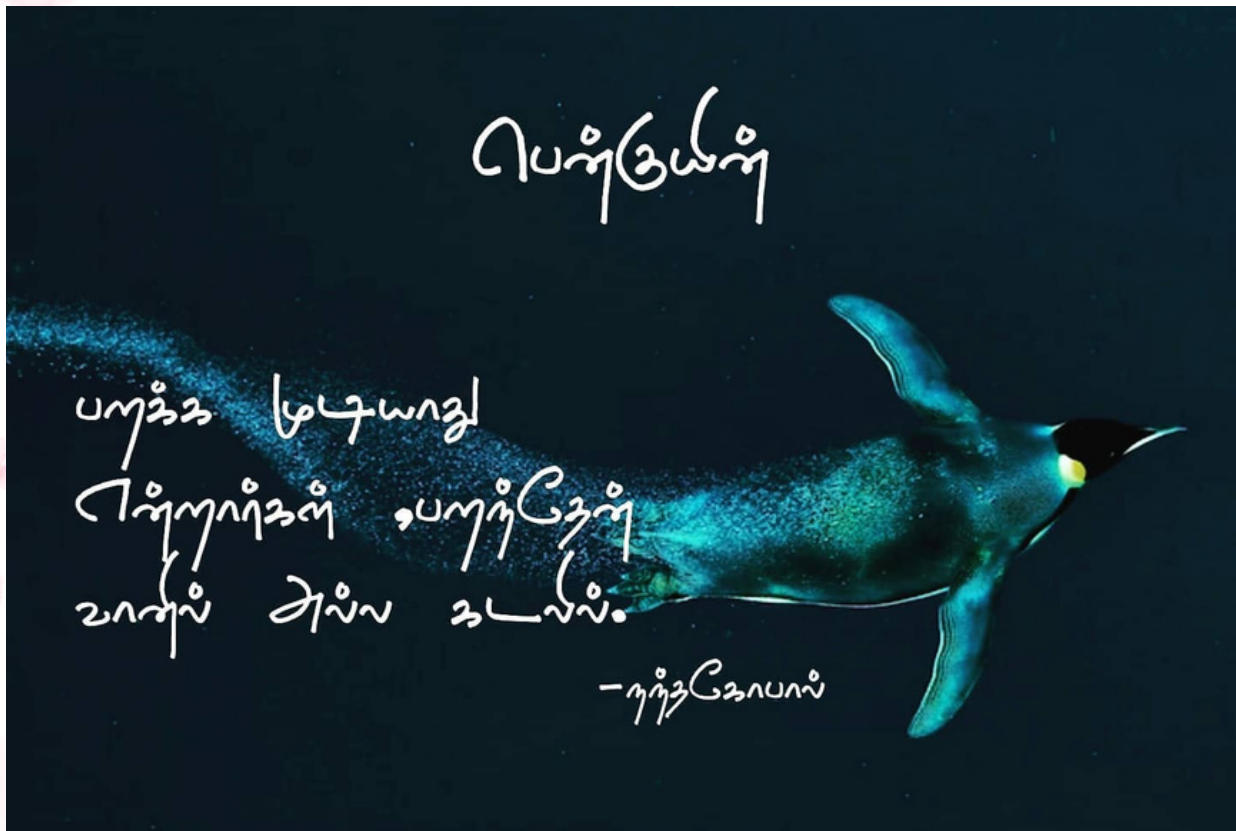
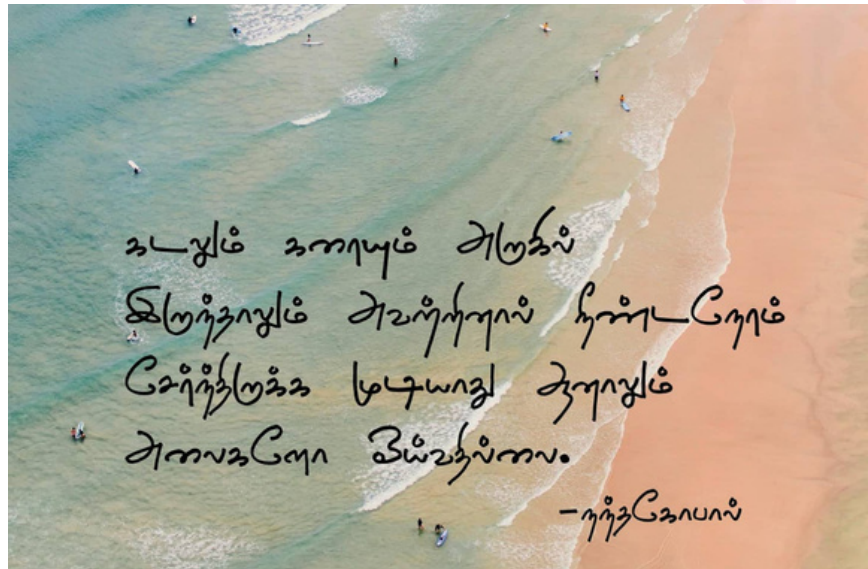
It is evident that paper from water hyacinth can be used as parchment paper, gift sheets, greeting cards.

BY
R. SWEETH SINGH

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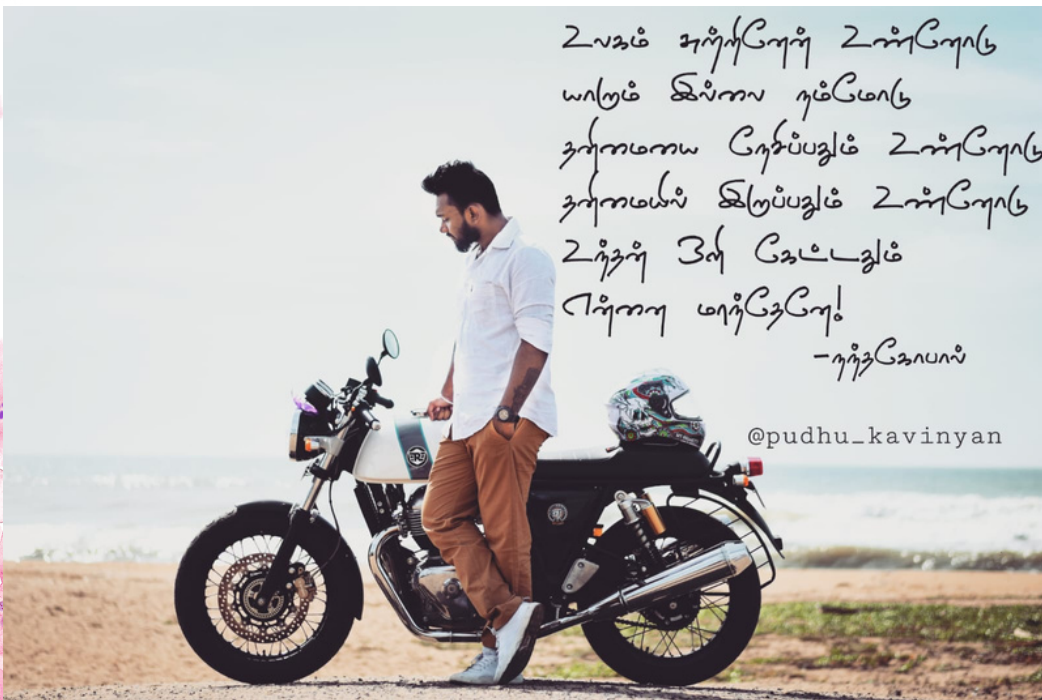
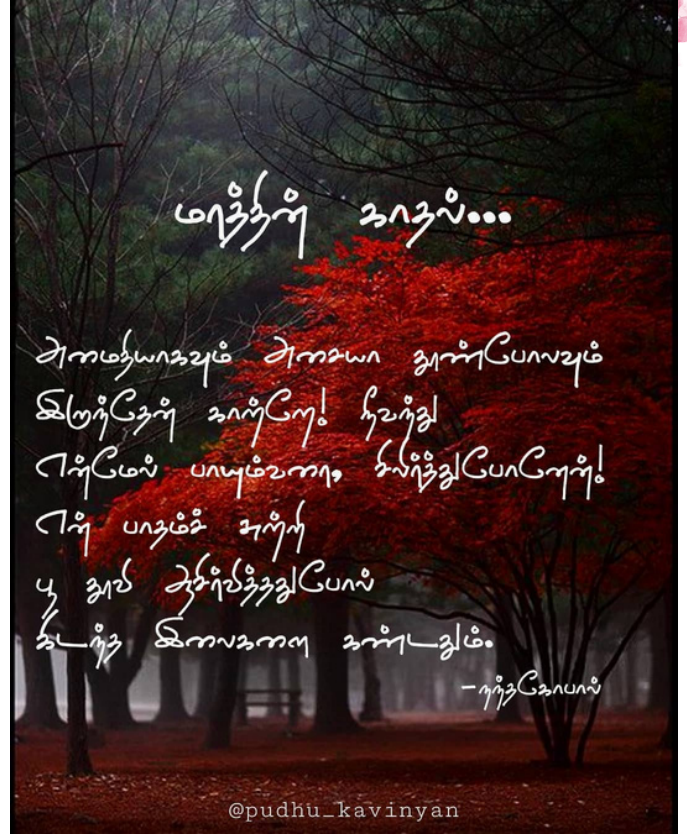
Creativity of Students

Nanda gopal
II Year Civil



GLIMPSES OF STUDENTS TALENTS

Creativity of Students



**Nanda gopal
II Year Civil**

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Photography of Students



**Kabilan
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Photography of Students



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**Reguram
II Year Civil**

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**NIVETHA K
II Year Civil**

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**NIVETHA K
II Year Civil**

THANK YOU !!!

