# PANIMALAR ENGINEERING COLLEGE

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POONAMALLEE, CHENNAI- 600 123.

## DEPARTMENT OF MECHANICAL ENGINEERING

**NEWSLETTER–THE TORQUE**

*.... Ready to be driven*

Vol. 13 | Issue 01
March 2018



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## Inside this issue



## FROM THE PRINCIPAL'S DESK

I congratulate the Department of Mechanical Engineering for taking the initiative to bring out this Department newsletter in a fashionable manner. I hope this newsletter will provide the platform and opportunity to all the students and staff members of Mechanical Engineering to share and update the information on recent developments taking place in the field of Mechanical Engineering. I wish all the best for bringing out many volumes successfully.

## FROM THE HOD'S DESK

I am very happy that our Mechanical Engineering Department is releasing this newsletter as a fore runner of the department activities for this semester. It is of upmost importance that students know things apart from the fundamentals in all fields to help them in their future. This newsletter in general will help the faculty and students to learn the latest developments. It will surely be of help to the students to advance their skills set.

## GUEST LECTURE ON INDUSTRY 4.0

A Guest Lecture on Industry 4.0 by Dr.N.Arunachalam, Professor / IITM was organized by Mechanical Engineering Department on 22nd January 2018, to enhance the knowledge to students on the recent Innovations of Manufacturing sector with respect to combination of Mechanical and electronics said to be Mechatronics on Automation by reducing the human effect.


Department Head delivering the Inaugural address


*Resource person delevering to students*

## PROJECT EXPO

In this event the final year students of mechanical engineering from various engineering colleges presented their projects and the best three projects were selected and prizes were awarded.

Best project team ,

Adhith Kumaar SB
Dinesh Kumar k
Gnanavel c
Gowtham A

*Student demonstrating their projects*

*Our Professors awarded the best project*

## SEMINAR ON PYTHON

A Seminar on Python was delivered by Mr.M.Subramaniam, Director of Chakrika Info Solutions on 04.04.2018 to Mechanical Engineering students to impart knowledge on the application of C, C++, Java and Python on Mechanical sectors.


## ARTICLES

## SABRE ENGINE

**- S.Naveen Kumar (II Mech)**


- Synergistic Air Breathing Rocket Engine
- Reaction Engines Ltd.
- For high speed aircraft and spacecraft
- Jet engine

1. Mach 3

- SABRE Engine

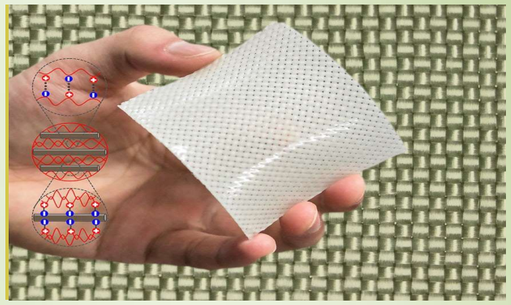
1. Mach 5.4 – Air breathing mode
2. Mach 25 – Rocket mode

## DUKE ENGINE

- Five cylinder
- Four stroke and valveless
- Has unique axial arrangement
- Vibration free motion
- 36% smaller and 19% lighter
- 3 exhaust head only
- Further on Ethanol , CNG , Diesel .LPG etc.

## 5 Times Stronger than Steel : Fiber Reinforced Hydrogel

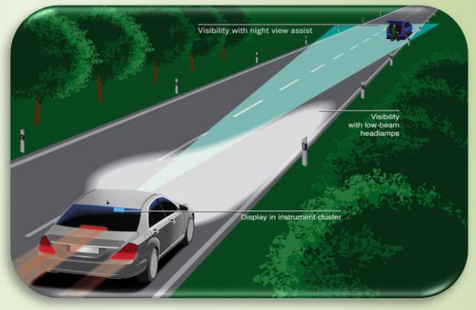
**- KrishnaPrabhu (II Mech)**



Hydrogels have shown significant potential in everything from wound dressings to soft robots, but their applications have been limited from their lack of toughness – until now. A team of scientists at Hokkaido University have developed a new set of hydrogel composites or "fiber-reinforced soft composites" that combine hydrogels with woven fiber fabric to create a material that is five times stronger than carbon steel. Composite materials have been around for millennia and the principle is very simple. A very soft substance like mud can be made strong enough to make bricks by adding straw as a tempering material. The same applies to adding crushed pottery to brick, seashells fragments to ceramic, or glass fiber to plastic.The latter is very similar to the fiber-reinforced hydrogel. Hydrogels are made of hydrophilic polymer chains that absorb up to 90 percent water. They aren't very strong or durable, but by adding glass tiny fibers the researchers created a tough, bendable, stretchable material.

## NIGHT VISION TECHNOLOGY IN AUOTOMOBILE

**- S.Yugesh Kanna (III Mech)**




Night vision technology is of greater use if one travels at a place where light availability is considerable low. First of all, Germans were the ones who came up with the idea of night vision. They used this in world war ll. only later this technology was used in automobiles introduced on Cadillac Deville in 2000. This system uses a thermographic camera to increase a driver's perception and seeing distance in darkness and poor weather. Two types of systems are in this technology one active and the other passive system.

ACTIVE SYSTEM: This system uses a infrared source built into the car to illuminate the road ahead with light that is invisible to humans. Pros of using this active system is that it gives high resolution images, works better in warmer conditions. Cons of this are it does not work well in fog or rain and it works only for a shorter range of 150-200 meters.

PASSIVE SYSTEM: This system does not use an infrared light source, instead they capture thermal radiation already emitted by the objects, using a thermographic camera.