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A NEWSLETTER OF CIVIL ENGINEERING DEPARTMENT

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EDITOR'S VOICE:

Importance of Fluid Mechanics In Our Daily Life.

Fluid: Fluid mechanics is the branch of science that studies the mechanics of fluids (liquids, gases, and plasmas) and the forces on them.

IMPORTANCE OF FLUID MECHANICS: Some interesting facts about fluid mechanics



(1) **ROSE**

(2) **HOT AIR BALLOON**

(3) **A TREE**

(4) **Blood Circulating**

- 1 What makes the rain form little droplets? **Could it be surface tension...**
- 2 A hot air balloon rises because the air inside the balloon is hotter than the air outside the balloon. the forces acting on the balloon, we realize **a buoyancy force is pushing upwards on the balloon.**
- 3 The drag force on a single leaf would be different than the drag force on an entire tree. This makes sense when we think about it because **force is pressure time's area. If we increase the area, we will increase the force**
- 4 **Blood Circulating :** The flow of blood through your veins is much like that of a fluid flowing through a pipe. The **flow of blood is steady and laminar**

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ABOUT DEPARTMENT :

Civil engineering is a professional engineering discipline that deals with the design, construction and maintenance of the physical and naturally built infrastructure for fulfillment of Basic Needs of human race including Transportation, Communication, Energy production, Religious, Cultural, Sports and Community and Social and Developmental activities like bridges, roads, canals, dams and buildings. Department is the foremost in imparting Civil Engineering education in KITS. Well qualified and experienced faculty is one of the salient feature of the department and acute care is taken to ensure that students acquire essential engineering concepts with in-depth understanding In addition to, the civil department is well equipped with required departmental laboratories with tools and equipments.

Vision of the Department:

Create a congenial learning environment for imparting knowledge, skills and values.

Mission of the Department:

- DM1 Providing state of the art facilities for learning and practicing.
- DM2 Providing additional skills and training to meet the needs of the industry.
- DM3 Inculcating professional and ethical values and serve the industry, society and environment.

A GUEST LECTURE

ADVANCED CONCRETE MATERIALS USED IN PRECAST CONSTRUCTION INDUSTRY-UPVC WINDOWS & DOORS

RESOURCE PERSON : Dr.K.Channdra Mouli, Professor & HOD.

The aim of this Guest Lecture is to tell the students the importance of “Advanced concrete materials used in precast construction industry-UPVC windows & Doors” and the role of civil engineers at different levels. The role of Concrete Production and its future scope was dealt to motivate the students towards upgrading trends in construction sector at the Mix design & Execution Level & Finishing Level.

About Guest Lecture:

Construction plays a very important role in economic growth through the multiple effects on the other sectors of the country's economy. Precast construction concept include those structures where the majority of structural components are standardized and produced in plants or yards in a location nearer or away from the construction site, and transported to the site location for its assembly.

The standardized precast elements facilitate mass production, in order to build large number of buildings in short duration. In the present case study, where the project consists of 62 towers with twelve floors each. Precast construction method has been adopted as the moulds of standardized components facilitate mass production with stringent quality control.

Precast construction method involves setting up of casting yard, production & stacking, transportation and erection of precast elements. Precast Construction is effective in terms of time, labours requirement, superior quality, better performance & finish, optimal material requirement, less wastage, reduced use of shuttering, desired shape, better finish etc., It is convenient to establish precast yard and to erect the precast elements at (near) site which speeds up the process & contributes towards mitigating delays in large scale construction projects. As this method requires huge initial investments, it is feasible for Large Scale Construction Projects only.

Work Session: Dr.K.Channdra Mouli, Professor& HOD., Department of Civil Engineering, University Engineering College, ANU, Guntur, has trained the students on the following topics.

Advanced concrete materials used in precast construction industry-UPVC windows & Doors



CEEA

Scientist of the Month:



DANIEL BERNOULLI

Daniel Bernoulli FRS (29 January 1700 – 17 March 1782) was a Swiss mathematician and physicist and was one of the many prominent mathematicians in the Bernoulli family. He is particularly remembered for his applications of mathematics to mechanics, especially fluid mechanics, and for his pioneering work in probability and statistics. His name is commemorated in the Bernoulli's principle, a particular example of the conservation of energy, which describes the mathematics of the mechanism underlying the operation of two important technologies of the 20th century: the carburetor and the airplane wing. In 2002, Bernoulli was inducted into the International Air & Space Hall of Fame at the San Diego Air & Space Museum.

His earliest mathematical work was the *Exercitationes* (Mathematical Exercises), published in 1724 with the help of Goldbach. Two years later he pointed out for the first time the frequent desirability of resolving a compound motion into motions of translation and motion of rotation. His chief work is *Hydrodynamica*, published in 1738.

Together Bernoulli and Euler tried to discover more about the flow of fluids. In particular, they wanted to know about the relationship between the speed at which blood flows and its pressure. To investigate this, Daniel experimented by puncturing the wall of a pipe with a small open ended straw and noted that the height to which the fluid rose up the straw was related to fluid's pressure in the pipe. Soon physicians all over Europe were measuring patients' blood pressure by sticking point-ended glass tubes directly into their arteries. It was not until about 170 years later, in 1896 that an Italian doctor discovered a less painful method which is still in use today. However, Bernoulli's method of measuring pressure is still used today in modern aircraft to measure the speed of the air passing the plane; that is its air speed.

Taking his discoveries further, Daniel Bernoulli now returned to his earlier work on Conservation of Energy. It was known that a moving body exchanges its kinetic energy for potential energy when it gains height. Daniel realised that in a similar way, a moving fluid exchanges its specific kinetic energy for pressure, the former being the kinetic energy per unit volume. Mathematically this law is now written