

MECH'CASOPIS

the infinite ingenuity

KAMARAJ

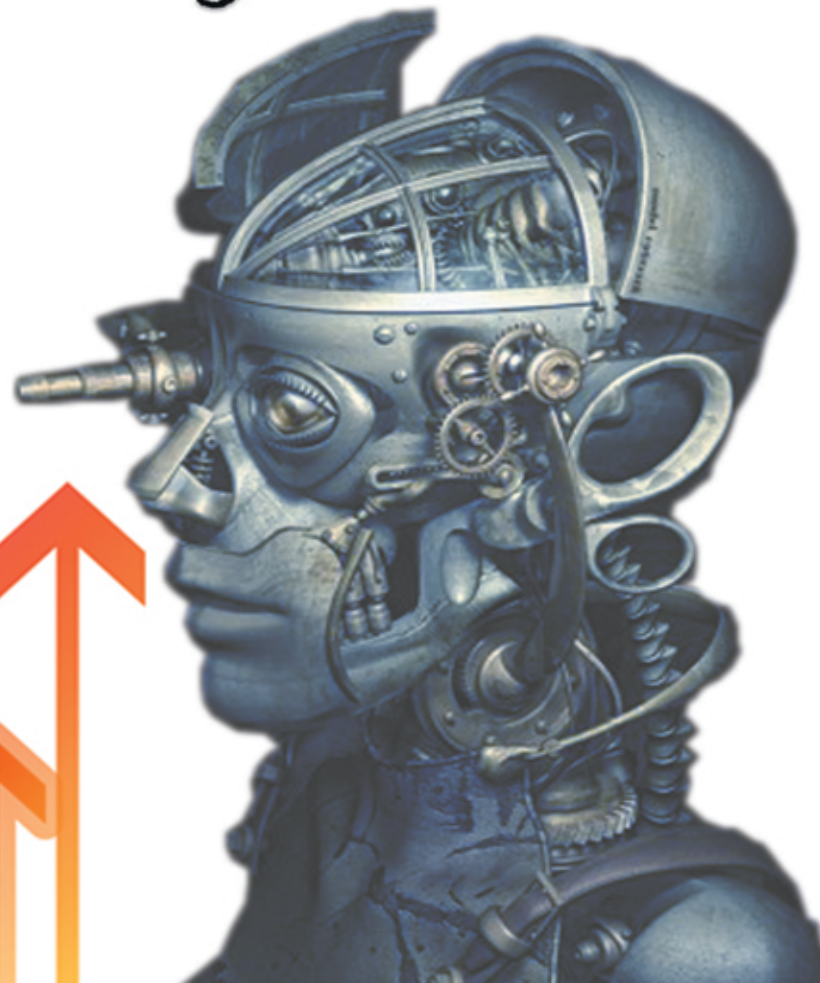
COLLEGE OF ENGINEERING & TECHNOLOGY

S.P.G. Chidambara Nadar - C. Nagammal Campus, S.P.G.C. Nagar, VIRUDHUNAGAR

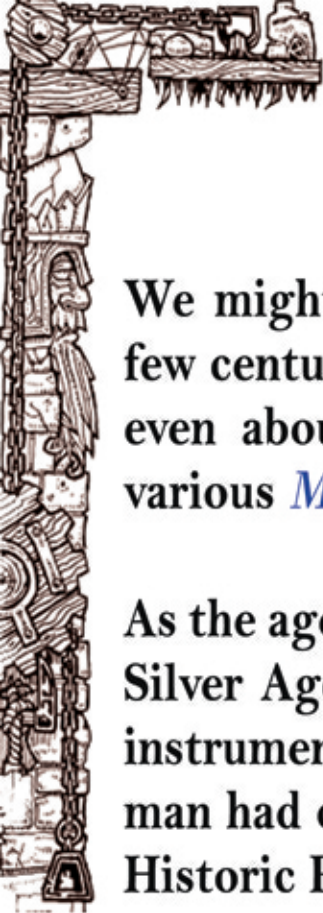
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Department of Mechanical Engineering



EDITION - 1
NOVEMBER, 2015



PROLOGUE

We might have thought that *Mechanical* Engineering evolved only a few centuries back. But when we research further, we can observe that even about 2.6 million years ago the early man started using the various *Mechanical* tools for cave carving, hunting, etc.

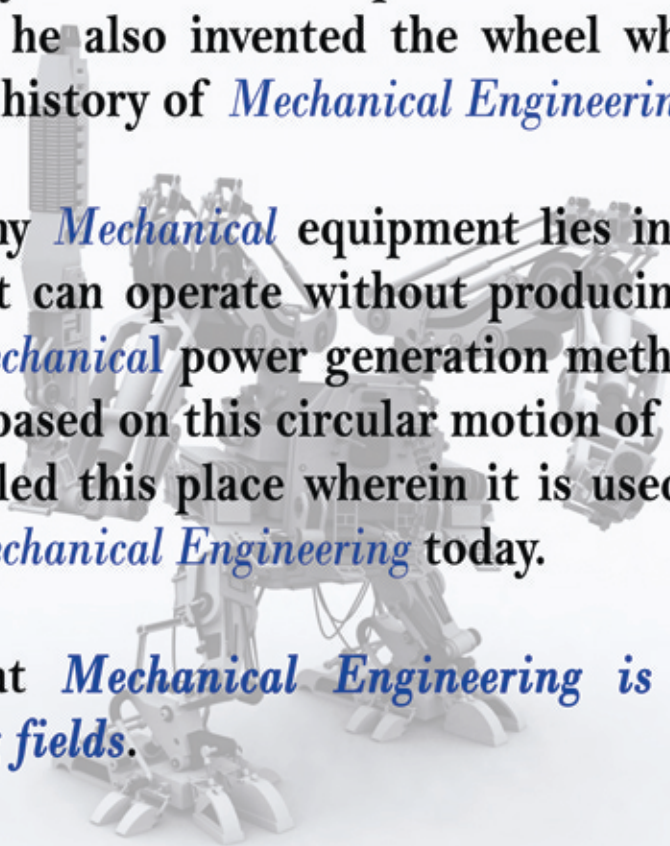
As the age progressed, through Iron Age, Bronze Age, Copper Age and Silver Age, they were able to invent innovative and advanced sets of instrument for sustaining their life. The invention of fire by the early man had changed them into true *Mechanical Engineers* during the Pre-Historic Period.

How this is so?

After the invention of fire, they started heat treating the metal tools and moulded them into desired shapes. He also used various metal levers and fulcrum for moving heavy stones from one place to the other. And soon after these inventions, he also invented the wheel which forms a tremendous growth in the history of *Mechanical Engineering*.

Today the basic foundation of any *Mechanical* equipment lies in its motion. No *Mechanical* equipment can operate without producing a motion out of it. The modern *Mechanical* power generation methods and production equipment are all based on this circular motion of the wheel. The invention of wheel filled this place wherein it is used in each and every field of modern *Mechanical Engineering* today.

Hence, we can proudly say that *Mechanical Engineering is the MOTHER of all other Engineering fields.*



ABOUT THE DEPARTMENT

Our college with a vision to promote **QUALITY** Technical Education to the rural blokes, kicked off in the year 1998 with four branches. Knowing the importance of core branches, our dream to start **MECHANICAL ENGINEERING** branch came true during the academic year 2005-2006. Our dream was substantiated by the opportunities prevailing in this region which is substituted with more industries small scale and large scale (Textile, Steel , Printing etc) industries. Also with a boom in automobile industries there is more scope for employability and entrepreneurship.

Our **MECHANICAL DEPARTMENT** is well equipped with lab facilities for the students which provide them opportunity to learn with technical examples. Our brilliant faculty team is guiding the students through both potent technical, practical and theoretical teaching methods. Students are allowed to use all the lab equipments and tools for developing their projects.

We have provided and been providing the students with Value Added Courses as well. ANSYS course was colmpted in the last Quarterly and AutoCAD inventor and NDT courses will be provided in the upcoming months.

Students are being evaluated by the Tutors. Mentor is allotted for each student for monitoring their habitual actions inside the department and to sort their Extra-Curricular and Co-Curricular skills towards the path of continuous improvement.

17th July, 2015

A guest lecture was delivered by **Mr.P.Rajeshkumar**, Senior Engineer, Grundfos Pumps, Hyderabad on “Significant Role of Pumps in Industry”



13th July 2015

A guest lecture was delivered by **Dr.B.Venkatraman** and **Dr.E.Loganathan**, IGCAR, Kalpakkam on “Non-Destructive Testing”

17th July 2015

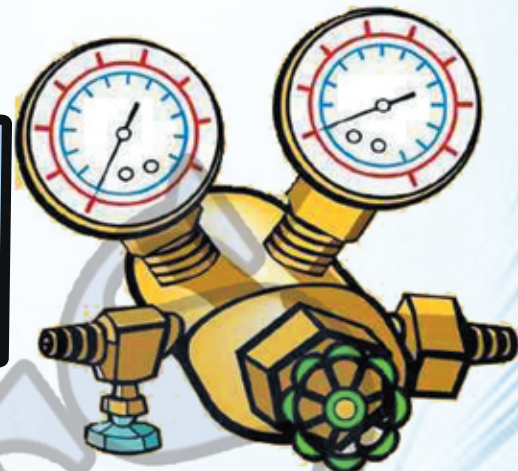
Er. S.Seetharaman (M.D. Super Auto Forge, Chennai), **Er.H.Manohar Lulla** (Consultant, R&A/C, Chennai) and **Er.K.Narayanan** (Retd. Chief Engineer, Merchant Navy) delivered a guest lecture on, “Exposure on Mechanical Engineering”



ENGINEER YOUR LIFE

2nd September 2015

One Day Workshop on, "Maintenance of Air Compressor and Motors" was conducted by **Mr.R.Balagopalan** (M.D. Vikram Engineers, Chennai)



25th September 2015

An Awareness Programme on Non-Destructive testing was organized for the 3rd Year Students by **Mr.P.K.Vimalathithan** and **Dr.P.Manimaran**, Professor, Mechanical engineering, KCET



Did You Know?!

Hey! Did you know, when we fall off a building we don't die because of $V = U + gT$ but because of

$$F = m \Delta V / \Delta T??$$

TIMELINE

Several years later, Here we are in the modern world! We had gone through the likes of Scramjet Engine, V-Engine and Yoke Engine which will accumulate the evolution of new and advanced hybrids!

What we're going to do? Witness them happening or Make them to happen??

Benz designed and built his own four-stroke engine that was used in his automobiles, which were developed in 1885, patented in 1886, and became the first automobiles in production.

1879

Nikolaus Otto, working with Gottlieb Daimler and Wilhelm Maybach, started the genesis of the four-cycle engine.

1876

The German Nikolaus Otto began to manufacture a no compression gas Lenoir engine with a free piston

1862

Joseph Lenoir produced a gas fired internal combustion engine similar in appearance to a horizontal double-acting steam engine, with cylinders, pistons, connecting rods, and flywheel in which the gas essentially took the place of the steam.

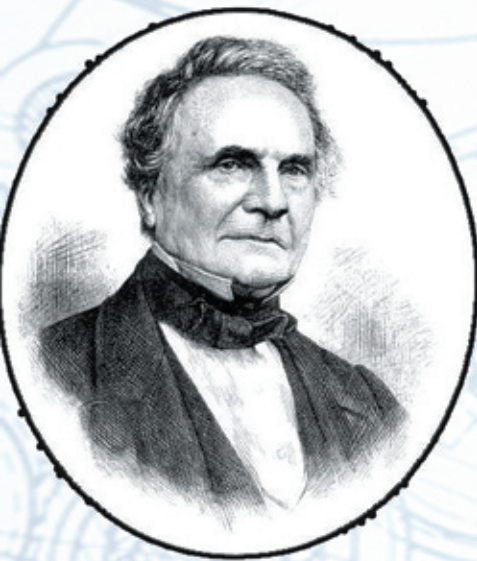
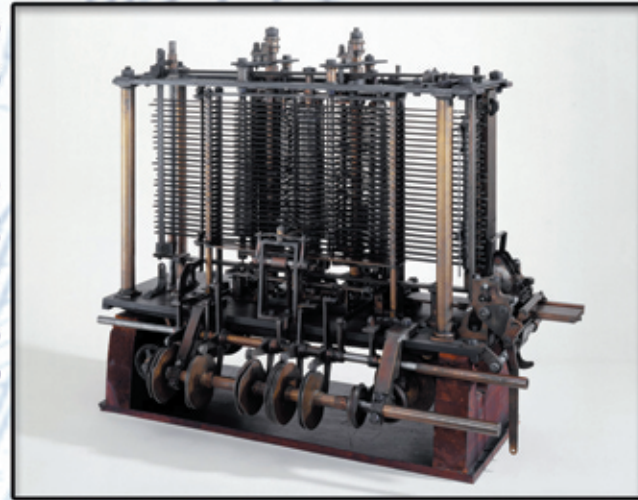
1800's

Christiaan Huygens designed gunpowder to drive water pumps, essentially creating the first idea of a rudimentary internal combustion piston engine

1700's

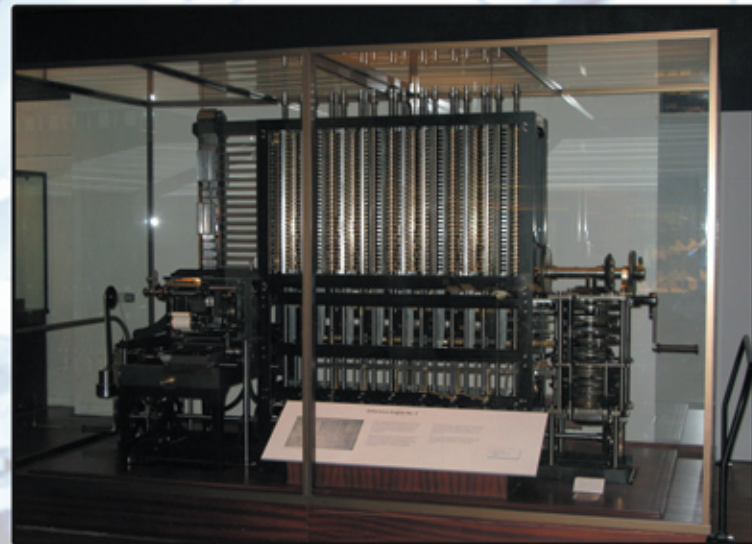
FIRST MECHANICAL COMPUTER

We all are aware of the verity Charles Babbage; the renowned Mathematician was the pioneer for the invention of the Modern day computer. But little do we know that, the first general purpose computer he built in the 19th century (Precisely 1837) was a Mechanical computer which utilizes Mechanical Looms, Gears and various other Mechanical components.



He designed two Engines, Analytical engine and Difference Engine, which could be used for both Arithmetical Problems which also involves loops, control flow and conditional breaking. Analytical Engine is the first General Purpose Computer, had the options to provide input data and obtain the output through punched cards.

Difference Engine was designed to tabulate polynomial functions of higher order. It utilized the divided difference method to interpolate or tabulate functions using small set of polynomial coefficients.



Both these systems toiled by the exploitation of various gear system and were operated based on the Crank lever mechanism. Anyhow, the Analytical Engine, a Mechanical Calculator, led the way to the invention of the first General Purpose computer which was designed almost 150 years later.

SAE international

founded in the
year 1904.
established as
society of
automotive
engineers



currently focuses on

- 1) Advanced materials
- 2) vehicle Electrification
- 3) Counterfeit parts

SAEINDIA is an
affiliate society of
SAE International.
dedicated to the
advancement of
mobility community
in India

To Continuously Enrich
Knowledge Base of
Practitioners in Mobility
Industry and Institutions in
the Service of Humanity.

VISION
STATEMENT

SAE ISS - TIER II EVENTS
MADURAI DIVISIONAL LEVEL
AUGUST 28, 2015

78 students from our
department have
active membership
in SAE



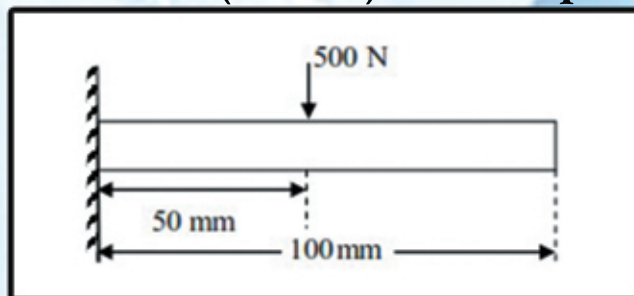
250 students from 11
colleges in and
around the southern
zone participated and
reaped their
rewards



luck is for losers; everyone is a
winner when they try!

GATE QUESTIONS

1. A wheel of radius r rolls without slipping on a horizontal surface shown below. If the velocity of point P is 10 m/s in the horizontal direction, the magnitude of velocity of point Q (in m/s) is _____
2. Consider fully developed flow in a circular pipe with negligible entrance length effects. Assuming the mass flow rate, density and friction factor to be constant, if the length of the pipe is doubled and the diameter is halved, the head loss due to friction will increase by a factor of _____
3. Which one of the following is the most conservative fatigue failure criterion?
4. In a linear arc welding process, the heat input per unit length is inversely proportional to _____
5. The probability of obtaining at least two “SIX” in throwing a fair dice 4 time is _____
6. A precision instrument package ($m = 1$ kg) needs to be mounted on a surface vibrating at 60 Hz. It is desired that only 5% of the base surface vibration amplitude be transmitted to the instrument. Assuming that the isolation is designed with its natural frequency significantly lesser than 60 Hz, so that the effect of damping may be ignored. The stiffness (in N/m) of the required mounting pad is _____
7. A cantilever beam with flexural rigidity of 200 Nm^2 is loaded as shown in the figure. The deflection (in mm) at the tip of the beam is _____.



Answers will be on the upcoming pages!



I'm the most classic, wealthy and genius mind

**MAD
SCIENTIST**

I have 1093 patents and tons of money you could never imagine

I invented the Light Bulb and enlightened your life

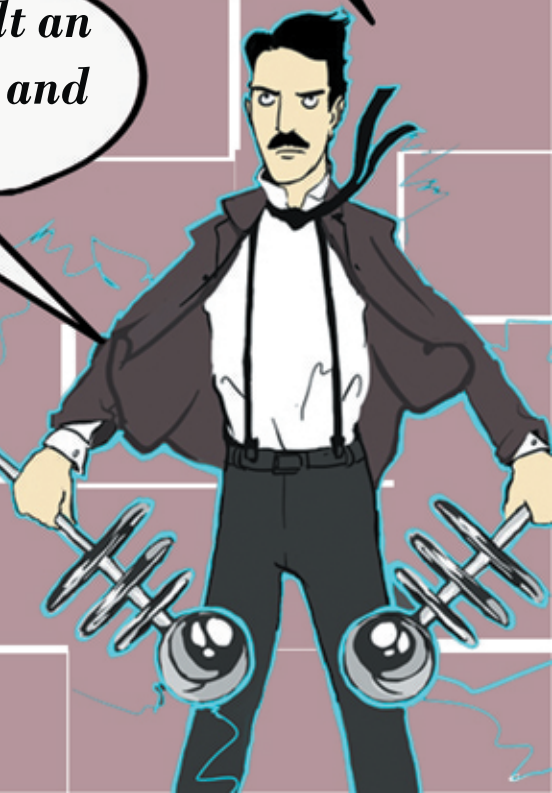
I have the most eidetic memory which perhaps can be a curse at times

My entire knowledge was self-educated!

Papers don't matter! I can built an intricate machine in my mind and simulate it in real!

But I produced artificial lighting and wireless power transmission.

Perhaps. But I'm a renowned Mechanical Engineer, Electrical Engineer, Physicist and a Futurist.



**BULB
MAN**

PICTURE CERTAINLY IS MORE THAN 1000 WORDS!! FIND OUT WHY!



An Engineer can't solve a problem without creating 10 further more. But he'll eventually find solutions to them all!!

DID YOU KNOW?!



The dimples in the golfball reduce the drag and allows the ball to fly further than a smooth ball would!

ANSWERS

(FOR THE GATE QUESTIONS)

1) 20 m/s

2) 64

3) Soderberg

4) Welding Speed

5) 19/144

6) 6767.6 N/m

7) 0.26



UPCOMING EVENTS

Our Department has planned to organize a 7 day FDTP Programme on 1st December, 2015.

A National Conference has also been planned to be conducted in the month of February, 2016.

Give me a lever long enough and a fulcrum on which to place it, and I shall move the world.

Archimedes

MECH'ČASOPIS

Časopis is Croatian linguistic form of "Magazine" or "Journal".

An engineer ought to be the one who knows what he doesn't know and intend to make it to be known through the ways of absorbing understanding, analyzing, interpreting, inquiring and evalauting any sort of tasks into a satiable solution.

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