



MECHANICAL DEPARTMENT NEWS LETTER

DECEMBER 2016
VOL 4, ISSUE 6

HOD DESK

Greetings to Dear students, Faculty and Friends!

Academic activities for odd semester 2016-17 for both KTU and KU was completed on time and all our students were well prepared to face the ongoing examinations. Congratulation is due to our SAE team "INVICTO (BAJA)" for being the only team from Kerala to be selected for the "International SAE competition to be held at Illinois, USA" from 7-10 June 2017.

Our faculty representation in 'International conference on green technology and energy efficiency' held during 28 Sept - 1st Oct. 2016 at Sakarya University, Turkey is a commendable achievement. As 2016 is coming to a close, let us all take stock of our activities of past one year and take resolve to do better in the coming year for the benefit of self and the Organisation.

"Merry Christmas and a Very Happy New Year wishes 2017"

Cdr Raju K Kuriakose (retd)

Inside this issue

HOD Desk

SAE Desk

Auto Desk Work shop

Dept. Achievements

Techz N Trendz

Newly Joined Faculties

Adios Amigos

Forthcoming events



**BEYOND
BOUNDARIES**

**VJEC TEAM INVICTO QUALIFIED FOR
SAE INTERNATIONAL @USA**

VJEC Mechanical Department. Collegiate club SAE's Team INVICTO (BAJA) qualified for International SAE competition and is the only team from Kerala and is among 10 teams from India to get the selection. The event will be conducted at Illinois, The United States of America from 7th to 10th June 2017. The event will be conducted as BAJA SAE Illinois, in Caterpillar Edwards Demonstration & Learning center at Peoria. SAE VJEC TEAM INVICTO - International Team roster uploaded & Roll cage fabrication, suspension uprights, suspension mountings, engine and transmission assembly were completed

WORKSHOP ON SCULPT MODELLING: "HOW TO MODEL A CAR"

SAEINDIA

VIMAL JYOTHI ENGINEERING COLLEGE

AUTODESK DESIGN & ENGINEERING CLUB

interCAD systems pvt. ltd.

AUTODESK FUSION 360

DEPARTMENT OF MECHANICAL ENGINEERING

2 DAYS WORKSHOP ON SCULPT MODELLING – "HOW TO MODEL A CAR"...

In association with

DATE : 09 & 10 . Oct 2016
VENUE : CAD LAB
Programme coordinators :
Justin.C.Jose, Kevin.V Kurian, Dinish Chacko
(Assistant Professor, ME)

As part of academic curriculum and evolving the skill set among students, ME department SAE VJEC chapter in association with the InterCAD systems conducted two day work shop on sculpt modeling: "How to Model a Car" on 9th & 10th October 2016 at CAD lab. The excellent session on sculpt modeling was conducted and various exercises were given to students based on various project works. The students models were uploaded online & results awaited for best model.

INTERNATIONAL CONFERENCE @TURKEY

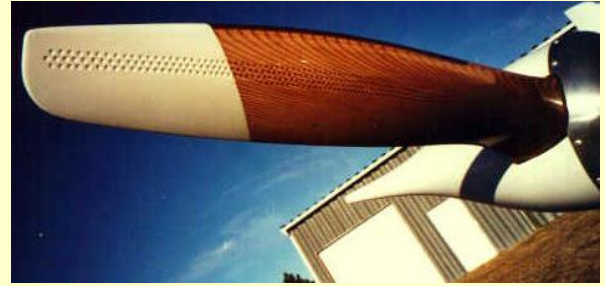


Yeşil Enerji Açısından Önemli Tesis
 Sakarya'da yeşil enerji kullanımını konusunda önemli projelerin birçoğunun yerel yönetimler tarafından hayata geçirildiğini dile getiren **Hindistan Vimal Jyothi Engineering Üniversitesi** öğretim üyesi **Dr. Sreejith Mohan** ise, "Hindistan'ın güney kesiminde bir şehirde yaşıyorum. Yaşadığım şehirle Sakarya'yı kıyasladığımda Sakarya'nın çok daha düzenli ve temiz bir şehir olduğunu gördüm. Hidroelektrik santrali gezimizde anladığım kadıyla yeşil enerjiye, temiz enerjiye çok önem veren bir şehir Sakarya. ADASU HES mühendislik açısından çok güzel bir tesis. Sakarya'da yeşil enerji ile alakalı böyle bir tesisin yapıldığını görmek bizleri çok mutlu etti. Hem Sakarya ziyaretimiz hem de hidroelektrik santrali gezimiz gerçekten çok faydalı oldu. İnşallah gelecek senelerde Sakarya ile güzel projelere imza atarız" ifadelerini kullandı.



Dr. Sreejith Mohan (Associate Professor, ME) & Mr. Albin Joseph (M.Tech Thermal Engineering Student) Presented paper on : Pool boiling heat transfer enhancement using CuOnano coating at International conference on green technology and energy efficiency held during 28 Sept - 1st Oct. 2016 at **Sakarya University, Turkey**. The leading Turkish newspapers highlighted the conference & the VimalJyothi Engineering College has attracted the screen presence

From the beginning of human race, man has always dreamt of flying and on December 17, 1903 Wright brothers gave human race new wings and hoped for continuous endeavours in this field. Now we have progressed to great extent in air but still after so much has been done there are certain constraints binding us. Freedom in the air is still not complete. Continuous attempts are being made to increase freedom in air, be it speed, size or manoeuvrability. From the commercial jetliners to supersonic fighters, there has been an exponential growth in the aviation industry. Still there is vast scope for further improvements. At present, different kinds of surface modifications are being studied to improve the manoeuvrability of the aircraft. Vortex generators are the most frequently used modifications to an aircraft surface.



Vortex generators create turbulence by creating vortices which delays the boundary layer separation resulting in decrease of pressure drag and also increase in the angle of stall. It helps to reduce the pressure drag at high angle of attack and also increases the overall lift of the aircraft. Riblets are another type of modification that is being considered these days. Another surface modification which has been considered is dimples of different types and shapes. Dimples on golf balls have been inspiring engineers in the field of vehicle aerodynamics considering its effect in reducing drag on spinning bodies. A golf ball with a dimpled surface can travel higher and further than a smooth surfaced golf ball when subjected to identical force. The dimples on golf balls induce turbulence at lower Reynolds number, providing extra momentum or energy to the boundary layer and causing delay in flow separation. This phenomenon causes smaller wake areas or swirling flow regions behind the ball, thus reducing the total drag.

Till now these have been ignored because dimples help in reduction of pressure drag. In case of aerodynamic bodies pressure drag is very little compared to bluff bodies. An airfoil is an aerodynamic body so dimples do not affect to its drag much at zero angle of attack, but as soon as airfoil attains some angle of attack, wake formation starts due to boundary layer separation. Dimples on aircraft wing model works in same manner as vortex generators. Most importantly this can be quite effective at different angle of attack and also can change angle of stall to a great extent. A stall is a condition in aerodynamics and aviation where the angle of attack increases beyond a certain point such that the lift begins to decrease. The angle at which it occurs is called the critical angle of attack or angle of stall. Flow separation begins to occur at small angles of attack while attached flow over the wing is still dominant. As angle of attack increases, the separated regions on the top of the wing increase in size and hinder the wing's ability to create lift. At the critical angle of attack, separated flow is so dominant that further increases in angle of attack produce less lift and vastly more drag.

In a nutshell, when the air flows along the surface of the aerofoil with dimple, there is an acceleration of the flow at the dimple surface and the boundary layer changes from laminar to turbulent. This transition results in delayed flow separation which reduces the drag. The presence of a dimple therefore increases the stall angle of the aircraft. This, if incorporated would be extremely beneficial in making an aircraft more manoeuvrable and increase the aircraft's fuel economy. The position and dimensions of the dimple affect the drag and lift characteristics. The total aerodynamic efficiency increases due to the reduced drag. However, experimental studies have to be performed. It is also necessary to determine the feasibility of generation of dimples on aircraft wings. The concept of presence of dimples on aircraft wings to reduce drag cannot be applied to all aerofoil profiles. Improved aerodynamics is critical to both commercial and military aircraft. For commercial aircraft, improved aerodynamics reduces operating costs. It also significantly contributes to the national security by improving efficiency and performance of military aircraft.



Dr. George Rapheal
B Tech, M Tech, Ph.D
 Associate Professor
 Specialization: Material
 s Science
 & Engineering



Dr. P Sridharan
B. Tech, M.Tech, Ph.D
 Associate Professor
 Specialization: Product
 Design, Vibration &
 Fuzzy logic



Mr. Aji Augustine
B Tech, M Tech
 Assistant Professor
 Specialization: Machin
 e Design



Mr. Johny P Joseph
B Tech, M Tech
 Assistant Professor
 Specialization: Mach
 ine Design



We wish you all the very best dear colleagues Dr. Sreejith Mohan, Mr. Ramprasad, Mr. Rahul R and Mr. Kevin V Kurian for your new Ventures. Your great contributions to Mechanical Engineering Department will be always remembered



Forthcoming Events

One Day Workshop
 on
**TRANSITION FROM ISO 9001:2008
 TO ISO 9001:2015**
 16th December, 2016

VIMAL JYOTHI ENGINEERING COLLEGE
 Kumpangi - 670 602, Kanyakumari, Kerala

DEPARTMENT OF MECHANICAL ENGINEERING

Organized by

Three Days Training Workshop on "Programming & Operations of
 3-Axis CNC Vertical Machining Centre"
 (For Mechanical Engineering Students)
 13th - 15th FEBRUARY, 2017

Venue: Mgr. Jacob Varikattu Hall

Co-ordinator(s)
 Prof. Raju K.K. HoD/ME,
 Prof. Dr.R.Umesh Sundar

COURSE CONTENTS

- ✓ Introduction to CNC machines
- ✓ G-Codes & M-Codes
- ✓ Fanuc programming structure
- ✓ Absolute/Incremental method
- ✓ Creation of subprograms
- ✓ Canned cycles - Drilling & Tapping
- ✓ Cutter radius compensation
- ✓ Tool & Wear offset parameter setting



Staff Editors: Mejo M Francis & Hari Prasad Student Editors: Ajay T George & Nirmal K Jose