



CYNOSURE



BI-ANNUAL NEWS LETTER

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ABOUT THE DEPARTMENT

“We want the education by which character is formed, strength of mind is increased, the intellect is expanded, and by which one can stand on one’s own feet .”

The Department of Mechanical Engineering was started in the year 2010. In the subsequent year, the intake was increased to 120. The Department has latest version equipments catering to the needs of both academic and industry. The worth of the equipment alone will cost around Rs. 1.5 crores.

Thermal lab, Manufacturing Technology lab and CAD/CAM laboratories are well equipped with research facilities.

The Department has highly qualified and dedicated faculty members with rich experience in academic and industry.



NEW LABORATORIES INAUGURATED



M.E.A inauguration in the month of August,2012.



Students attending a guest lecture.



Inauguration of symposium,MAQUINAS'12.

MESSAGES

CHAIRMAN:

The R.M.K. College of Engineering and Technology has already started making a mark of its own in the field of engineering education. The University results prove that point. Further, the very successful placement of our students in various MNCs deserves laurels. The management is extremely happy and sure that the, CYNOSURE, the first newsletter by the students and staff of the Department of Mechanical Engineering will enable students to showcase their latest technical skills. I wish them a great success.



VICE CHAIRMAN

It makes me happy that the Department of Mechanical Engineering is coming up with the first newsletter CYNOSURE. The Department has always been eager and determined to bring out talents through the newsletter. My congratulations and best wishes to the head, staff and students for their dedicated work



DIRECTOR

I extend a warm welcome to all the budding engineers to share their knowledge display their skills through CYNOSURE ,the first newsletter of the Mechanical Engineering Department at R.M.K. College of Engineering and technology . I wish everyone a good luck.



SECRETARY

I am deeply pleased to note that Department of Mechanical Engineering is coming up with the first newsletter, CYNOSURE. On this occasion, I pray that the staff and students of Mechanical Engineering Department excel in every endeavor.



VICE-CHAIRPERSON

It is a matter of great pleasure to learn that Department of Mechanical Engineering, is coming up with the first newsletter, CYNOSURE.I take the opportunity to wish them for their success in future endeavors. Also I would like to congratulate the editorial board members



PRINCIPAL

At the outset, I wish everyone of the Department of Mechanical Engineering, for coming up with their first newsletter, CYNOSURE. My hearty congratulations for the team and my best wishes to the department



VICE-PRINCIPAL

It gives me great pleasure to note that the Department of Mechanical Engineering is coming up with the first newsletter, CYNOSURE. I hope that articles deliberated in this will help the students to understand the various aspects of new technology in Mechanical Engineering to a greater extent and bring out the talents and skills of budding engineers in order to achieve an optimal outcome to face the global challenges. My hearty congratulations to the editorial board members and students.



Articles

AEROGEL (World's Lightest Material)

Aerogel is a very special type of foam which is 99.8% air. Aerogel is a low-density solid-state material derived from gel in which the liquid component of the gel has been replaced with gas. The result is an extremely low density solid with several remarkable properties, most notably its effectiveness as a thermal insulator. Aerogels are solid, but can be less dense than air. Despite their sparse molecular structure aerogels are strong.

It was first invented in the 1930s by Samuel Stephens Kistler, but was very brittle and could not be shaped. Aerogels are traditionally expensive and difficult to manufacture, and they are difficult to handle. Now a team of scientists have discovered how to make it flexible so that it does not break so easily. This means there are a lot of ways in which it can be used to solve problems.

It is nicknamed frozen smoke, solid smoke or blue smoke due to its translucent nature and the way light scatters in the material; however, it feels like exploded polystyrene (Styrofoam) to the touch.

Aerogels possess the lowest density and highest internal surface area of any known solid material, which makes them extremely high performance material for collision, damping, acoustic and thermal insulation, structural support and surface chemistry.

Interesting Facts:

A paperclip has a mass of approximately one gram. A one gram sample of aerogel has an internal surface area of between 250 and 3000m² per gram (when produced in a weightless environment).

Lowest solid density: The lightest man-made material is an Aerogel with a density of only three times the density of air. However industrial aerogels can be made denser, up to 0.6 g/cc or more.

Highest porosity: Perhaps the only material that can have over 95% porosity, and a very wide pore size distribution, ranging from Angstroms (10⁻¹⁰ meter) to microns (10⁻⁶ meter).

Very high surface area: For some Aerogels, one ounce can have a surface area equal to a football field (over 3000 square meters per one gram).

Versatile compositions: Aerogels can be made with a wide range of chemical compositions.



A flower is on a piece of aerogel which is suspended over a Bunsen burner. Aerogel has excellent insulating properties, and the flower is protected from the flame



It's even lighter than aerogel ultralight materials

T.Rakesh, III year

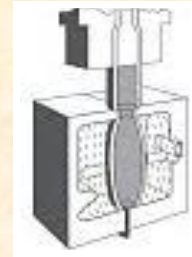
Poor worker blames his tools

Engineered blow molding : Basic concepts

Process Advantages:

Engineered blow molding offers a highly versatile process for fabricating parts. Effective designs for its blow molding take advantage of the inherent advantages of the process:

- “Hollow” aspect of design
- Strength-to-weight structural integrity
- Suitability for large shapes



Process Limitations:

- Extent to which material can be stretched
- Degree to which complexity/detail can be reproduced
- Part length limitation by material melt strength

The design must also make economic sense compared to other processes and materials.

The design/processing relationship

Engineered blow molding forms parts by blowing a hollow parison outward to conform to the shape of the mold. Inherent to this process is stretching of the thermoplastic resin material. That stretching thins the walls. Forcing the material to stretch too much may make it impossible control wall section thickness or even cause the parison to fail.

PATENT

A **patent** is a form of intellectual property. It consists of a set of exclusive rights granted by a sovereign state to an inventor or their assignee for a limited period of time in exchange for the public disclosure of an invention.

A patent application must include one or more claims defining the invention which must meet the relevant patentability requirements such as novelty and non-obviousness. The exclusive right granted to a patentee in most countries is the right to prevent others from making, using, selling, or distributing the patented invention without permission

It is a limited property right that the government offers to inventors in exchange for their agreement to share the details of their inventions with the public. Like any other property right, it may be sold, licensed, mortgaged, assigned or transferred, given away, or simply abandoned.

Inventors can obtain patents and then sell them to third parties. The third parties then own the patents and have the same rights to prevent others from exploiting the claimed inventions, as if they had originally made the inventions themselves.

A patent is requested by filing a written application at the relevant patent office. The person or company filing the application is referred to as "the applicant". The applicant may be the inventor or its assignee. The application contains a description of how to make and use the invention that must provide sufficient detail for a person skilled in the art (i.e., the relevant area of technology) to make and use the invention. In some countries there are requirements for providing specific information such as the usefulness of the invention, the best mode of performing the invention known to the inventor, or the technical problem or problems solved by the invention. Drawings illustrating the invention may also be provided.

For patenting in India, visit <http://www.ipindia.nic.in/>

V.Muthukkumaran

II Year ‘B’ Sec

MECHANICAL ENGINEERING ASSOCIATION (M.E.A) Activities

In the year 2011, the Mechanical Engineering Department inaugurated the Students' Association. The association organized, "MAQUINAS'11", a national level technical symposium, which was a huge success. It also organized a national level conference, "FAME'11", which had an overwhelming response.

In the subsequent year it has organized, "MAQUINAS '12". A National Level Technical Symposium on 24th sep, 2012. Seventy Students registered for the symposium from 15 colleges. Forty of them were shortlisted. Thirty five of them were participated in various events like Paper Presentation, CAD Modeling, Technical quiz. We received 45 papers out of which we selected 9 papers for Presentation. fifteen teams were participated in prelims of Technical quiz and 6 teams were selected for the finals. Thirteen teams participated in CAD Modeling and 6 teams were selected for the finals.



M.E.A also conducted several competitions like quiz etc., within the department. Students participated actively and won the prizes.

STAFF ACHIEVEMENT

Dr. P. K. Devan, Professor, received a Patent titled "New Poon oil Composition diesel blend as alternative fuel for diesel engine" has been granted on 16th july 2012. Patent no.253355

Mr.S.Senthil Kumar presented a paper on "Performance and Emission Characteristics of a Diesel Engine fueled with rubber sees oil based Bio-Diesel" in National Conference on Innovations in Mechanical Engineering held on 31st January 2012 at Gojan School of Business and Technology, Chennai.

Mr.S.Senthil Kumar presented a paper on "Solar Distillation of Water" in National Conference on Evolving Techniques in Mechanical Engineering held on 23-24 August 2012 at Sri Venkateswara College of Engineering and Technology, Thirupachur.

INDUSTRIAL VISITS

S.No.	Name of the industry	Details of students	Strength
1.	Hyundai Motors (India) Ltd., Chennai.	III rd year	66
2.	Nutech CNC Private Ltd, Vanagaram.	III rd year	66
3.	CRP (INDIA) Ltd, Thirumudivakkam.	II year	143
4.	Greaves Cotton Ltd, Gummidipoondi.	II year	143

If I hear , I forget
If I see, I remember
If I do , I understand

GUEST LECTURES

Third year fifth semester Mechanical engineering students have attended guest lecture delivered by Mr.A.R.Subramani, **UCAL FUEL SYSTEMS LIMITED**,Chennai about “CNC Program & Execution ” on 20.7.12.

Third year fifth semester Mechanical engineering students have attended guest lecture delivered by Mr.A.N.Rajendran, Managing Director (Technical), **NUTECH CNC PVT. LIMITED**,Chennai about “ Advance manufacturing Methodology” on 31.7.12.

Second year students attended a Guest lecture on basic concepts of Thermodynamics by Dr. G.Kumaresan, Assistant Professor, Anna University

Second year students attended a Guest lecture on Kinematics of Machinery by Dr. G. Shibu, on 06-10-12.

Third Year fifth semester students have attended a guest lecture on Thermal Engineering by Dr.M.R.Swaminathan, Assistant Professor, Anna University on 08-9-12

IN-PLANT TRAINING

The following students went for in-plant training to various industries during summer vacation 2012.

Nutech CNC Pvt. Ltd, Chennai	-	Mr.S.Mohamed Aslam, III Year
	-	Mr.M.Vignesh, III Year
	-	Mr.S.Venkatasubramanian, III Year
Ashok Leyland Ltd., Chennai	-	Mr.N.Deepan, III Year
	-	Mr.S.R.Balaji, III Year
	-	Mr.K.Karthick, III Year
Honda Motor Cycles & Scooters India, Gurgaon	-	Mr.Sanjeev Mohan, III Year
Hyundai Motor India Ltd.	-	Mr.P.Ashok Kumar, III Year
	-	Mr.D.Arjun, III Year
Central Institute of Tool Design	-	Mr.T.Rakesh, III Year
	-	Mr.M.Chaitanya, III Year

PROGRAMMES ATTENDED BY FACULTY

Mr.Loganathan.T.G,Associate Professor attended “MISSION 10X” training program at RMK Engineering College from 21.05.2012 to 25.05.2012.

All the faculty members of Mechanical Engineering Department attended “FACULTY DEVELOPMENT PROGRAMME” from 13-6-12 to 18-6-12 at RMK Engineering College, Chennai.

Mr.T.G.Loganathan attended a one week training programme on CNC Lathe and Milling machine at MTAB Training centre in the month of June 2012.

Mr.Gopinath, Lab technician also attended the CNC training programme as a part of skill enhancement programme at MTAB Training centre in the month of June 2012.

**Seek for the highest, aim at the highest,
and you shall reach the highest**

STUDENT'S ACHIEVEMENTS

<u>S.no.</u>	<u>Name of the student</u>	<u>Year</u>	<u>Event</u>	<u>Achievement</u>	<u>Organized by</u>
1.	Sai Charan Yalamanchi	III rd year	Paper Presentation	Participation	Velammal Engineering College
2.	T. Rakesh	III rd year	Paper Presentation	Participation	Velammal Engineering College
3.	M. Vignesh	III rd year	CAD Modeling	Participation	Velammal Engineering College
			CAD Modeling	IInd place	RMK Engineering College
4.	A. Balaji	III rd year	Project Display	Participation	Velammal Engineering College
5.	Sai Krishna	II nd year	Technical Quiz	Participation	Velammal Engineering College
6.	Suresh Menan.B	II nd year	Technical Quiz	Participation	Velammal Engineering College
7.	S. Mohammed Aslam	III rd year	Technical Quiz	Participation	SSN College of Engineering
			CAD Modeling	IInd place	RMK Engineering College
8.	V. Sai krishna	III rd year	Technical Quiz	Participation	SSN College of Engineering
9.	P. Ashok kumar	III rd year	Paper Presentation	Participation	Sri Venkateswara Institute of Science and Technology
10.	M. Kannan	III rd year	Paper Presentation	Participation	Sri Venkateswara Institute of Science and Technology

Achievement in Sports

Mr. R.Divakar of second year has won III rd place in the Junior Fencing championship organized by the Tamil Nadu Fencing Association held at Jawarharlal Nehru Stadium, Chennai on 10-12,september,2012.

EDITORIAL BOARD**Dr.Balasubramanian.M, Professor & Head****Mr.Jaganathan.V.M, Asst. Professor****Mr.Yelamanchi Saicharan, Student President****Mr.Rakesh.T, Secretary****Mr.Chaitanya.M, Student Treasurer**