



# NIRZER

NEWSLETTER OF MECHANICAL ENGINEERING DEPARTMENT





## Events & Activities

Date	Event
27 <sup>th</sup> January	IIIE Foundation Day celebration
2 <sup>nd</sup> to 10 <sup>th</sup> February	IIIE Graduateship Examination
28 <sup>th</sup> February	MESSERGI activity at Sharda English High School, Durbhat
2 <sup>nd</sup> , 3 <sup>rd</sup> & 4 <sup>th</sup> March	S.E., T.E. & B.E. Field visit to Sanjivani Sahakari Sakhar Karkhana Limited
19 <sup>th</sup> March	Talk on “Effects of Oceans on Climate Change” by Dr. S.W.A. Naqvi
19 <sup>th</sup> & 20 <sup>th</sup> March	Two day national level techno-cultural fest “Torque 2015”
11 <sup>th</sup> April	B.E. Mechanical students Field visit to Cartini India Limited
15 <sup>th</sup> April	Seminar on Maintenance Engineering
3 <sup>rd</sup> May	Second Prof. Uday Amonkar Memorial Lecture & IIIE Goa Chapter Foundation Day
6 <sup>th</sup> May	B.E. Class of 2015 farewell function
21 <sup>st</sup> June	International Yoga Day celebration
24 <sup>th</sup> June	MESSERGI activity at Shri Shantadurga High School, Bicholim

## Departmental News

- ✦ Prof. Gajesh G. S. Usgaonkar and Dr. Raghavendra D. Naik participated in a two -week ISTE STTP on “Pedagogy for Effective use of ICT in Engineering Education” conducted by Indian Institute of Technology, Bombay from 05<sup>th</sup> Jan to 31<sup>st</sup> Jan at IT Seminar Hall, GEC. Dr. Rajesh Prabhu Gaonkar, Head of Mechanical Engineering Department, GEC was the workshop coordinator .
- ✦ Dr. Vinay Shirodkar and Dr. Akshay Nigalve attended the 27<sup>th</sup> annual convocation of Goa University held on 23<sup>rd</sup> January, 2015.
- ✦ The Foundation Day of Indian Institution of Industrial Engineering (IIIE) was celebrated on 27<sup>th</sup> January 2015.
- ✦ Prof. Manohar Shankar and Prof. Mahesh Caisucar attended one week training program on KUKA Industrial ROBOT, held from 2<sup>nd</sup> February to 6<sup>th</sup> February, 2015.



- ✦ IIIE Goa Chapter conducted the Graduateship exams in the month of February. Prof. Milind Sakhardande was the Chief Exam Superintendent and was assisted by Prof. Gajesh Usgaonkar.
- ✦ Dr. Suraj S. Rane participated in the “Awareness Workshop on Assessment and Accreditation” organised by Internal Quality Assurance Cell (IQAC), Goa University and sponsored by the National Assessment and Accreditation Council (NAAC), Bengaluru, held on February 13-14, 2015 at Goa University.
- ✦ Dr. Raghvendra Naik attended a 3 day workshop on “Nature Inspired Computation in Engineering Application” at IISC, Bangalore in March 2015.
- ✦ Dr. Shridhar Mhalsekar joined the Department as Associate Professor on 6<sup>th</sup> April, 2015.
- ✦ Dr. Shridhar D Mhalsekar attended short term course on "Advance chip level repairs of Motherboards of Laptops, Desktops and Mobiles" in collaboration with PC Klinik from 27<sup>th</sup> April to 8<sup>th</sup> May at NITTTR Extension Centre Goa.
- ✦ Prof. Uday Amonkar Memorial Lecture and IIIE Goa Chapter Foundation Day conducted on 3<sup>rd</sup> May 2015.
- ✦ Shri Harichandra Chandekar joined the Department as Assistant Professor on 5<sup>th</sup> May, 2015.
- ✦ Dr. Vinay Shirodkar, Dr. Akshay Nigalye, Dr. Suraj Rane, Prof. Mahesh Dhawaliker, Prof. Milind Sakhardande, Prof. B. R. Kulkarni, Prof. Gajesh Usgaonkar and Prof. Mahesh Caisucar were deputed as Centre Representatives for the GCET examination which was conducted from 5<sup>th</sup> to 7<sup>th</sup> May 2015.
- ✦ Prof. Harichandra Chandekar participated in a two-week ISTE STTP on ‘Environmental Studies’ conducted by Indian Institute of Technology, Bombay from 2<sup>nd</sup> June to 12<sup>th</sup> June 2015. Prof. Milind Sakhardande was remote centre workshop coordinator.
- ✦ Dr. Suraj Rane was appointed Chief Conductor for May/June 2015 Examination (UG).
- ✦ Dr. Shridhar Mhalsekar was appointed as Senior Supervisor for May/June 2015 Examination (UG).
- ✦ Dr. Raghvendra Naik attended a one week workshop on “Vehicle Dynamics” at Xitadel, Pune in June 2015.
- ✦ Prof. Mahesh Caisucar was appointed as member of Degree Admission Committee 2015.
- ✦ Prof. Mahesh Caisucar was part of the GEC team that took part in the Goa Civil Service Cricket and Football tournament.
- ✦ Dr. Vinay Shirodkar and Prof. Varun Mhabal were the coordinator for the Internal Test examination.



## Foundation day celebrations of IIIE at Goa College of Engineering

The 58<sup>th</sup> foundation day celebration of IIIE was celebrated on 27<sup>th</sup> January 2015. The function started at 2.30 pm with the singing of the National Anthem. The guest speakers were welcomed with bouquets and the traditional lamp was lit by the guest speakers, Principal Goa College of Engineering, office bearers & members of the IIIE Goa Chapter.

The guest speakers were introduced to the gathering and thereafter they delivered the plenary address. Eminent speakers were Prof. Prabir Kumar Bandyopadhyay, Goa Institute of Management and Mr. Mohan Rao, Sr. Project Consultant, Canada.

Prof. Bandyopadhyay spoke on 'Revisiting Taylorism & Scientific Management'. It was well received by the audience. He also dealt with a lot of case studies. Mr. Mohan Rao spoke on 'Exploration, extraction, processing and transportation of oil & gas from Canada's oil sands'. He spoke on the environmental concerns and how they are adhered to by the companies. The students were interested in the career prospects at the oil sands, which was enumerated well by Mr. Mohan Rao.

The Principal of Goa College of Engineering Dr. V. N. Shet presented mementos to the guest speakers. The function concluded with vote of thanks and refreshments. Shri B. S. Manohar compered the celebration function.





## Professor Uday Amonkar Memorial Lecture

Indian Institute of Industrial Engineering (IIIE) Goa Chapter at Goa College of Engineering organized second Professor Uday Amonkar memorial lecture on 3<sup>rd</sup> May 2015 being the birth date of Professor Uday Amonkar and the foundation day of IIIE Goa Chapter.

The event began with the singing of national anthem, followed by lighting of the traditional lamp. A brief slide show depicting snap shots on the life and teachings of Professor Uday Amonkar was presented. Shri Vivek Kamat, President of IIIE Goa Chapter welcomed the gathering and recalled how Professor Uday Amonkar single handedly initiated the movement of Industrial Engineering in Goa. Professor Arun D. Telang, Head of Mechanical Engineering Department at PCCE, Verna and a close associate of Professor Uday Amonkar spoke on the occasion, highlighting the immense contribution of Professor Uday Amonkar to the ever-growing field of Industrial Engineering in Goa.

Prof. Rajesh Prabhu Gaonkar, IIIE Goa Chapter Chairman & Head of Mechanical Engineering Department at GEC introduced the guest speaker Prof. K.V.S.S. Narayana Rao, Professor at National Institute of Industrial Engineering (NITIE), Mumbai. Prof. Narayana Rao, delivered the memorial lecture titled 'MAKE IN INDIA - ROLE OF INDUSTRIAL ENGINEERING'.

In his lecture Prof. Narayana Rao stressed upon the audience, how Industrial Engineering can aid in Make in India campaign and make the concept/ idea possible/ successful. Prof. Rao, in his unique style presented the quantitative data and facts about the present prevailing scenario in India. Dr. V. Mariappan, Principal, Agnel Institute of Technology and Design, Goa was present on the occasion.

Shri Milind Sakhardande, Hon. Secretary of IIIE Goa Chapter presented vote of thanks and also compered the function. The function was partially supported by IIIE NHQ.





## Field Visit to Sanjivani Sahakari Sakhar Karkhana Limited

Report by Tejas Petkar, S.E. Mechnaical

The Mechanical Engineering students of second year, third year and final year were taken to the Sanjivani Sahakari Sakhar Karkhana for field visit from 2<sup>nd</sup> to 4<sup>th</sup> March, 2015. The Sanjivani Sahakari Sakhar Karkhana Ltd is situated at Usgao, Goa and is the only sugar factory in the



state of Goa. The factory, which has recently been modified and upgraded in 2013 for higher production capacity, accepts about 75,000 metric tons of sugarcane from neighbouring states like Maharashtra, Karnataka etc. and about 55,000 MT from local Goan farmers.

The students were given a guided tour of the plant where they witnessed various domains like manufacturing, storage, dispatch etc. They got an opportunity to see and understand the various processes involved in the production of sugar. The



process starts with the feeding system consisting of an overhead gantry crane with a grapple hook, removing sugarcane from the trucks and dumping it on a conveyor which carries it to the crusher. The three stage mill, crushes the sugarcane until about 10% cane juice remains, at which stage water is added to the crushed sugarcane to extract the remaining juice. The remaining dry fibres, called bagasse, is used as fuel in the HP boilers which generates steam for turbine to drive the crushing mill, produce electricity and to boil the sugarcane juice. The Quadruple Effect Evaporator is used to boil the juice to reduce the water content to less than 40%.

The second stage of the sugar extraction involves chemically treating the sugarcane juice to obtain sugar. First the pH of the juice is adjusted by adding lime to it, so that the sucrose doesn't decay

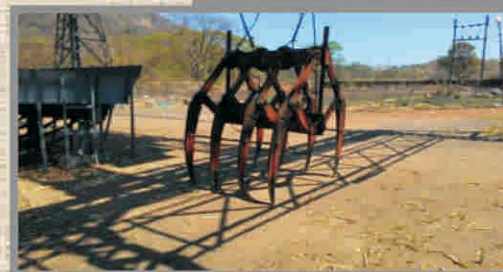


into glucose and fructose. Sulphur powder is burned on site to obtain sulphur dioxide gas which is a bleaching agent for the juice. Thus colourless or white sugar is obtained at the end of the process. It is then seeded with fine sugar crystals which act as

nucleation sites for new sugar crystals to form and grow. After letting the mixture crystallize, it is sent to the third and final stage of the sugar production which is mechanical separation.

The third stage uses a high speed centrifuge, driven by steam from the boilers, to separate the sugar crystals and the molasses from the mixture. The sugar sticks to the walls of the centrifuge and the molasses is drained away. After dry sugar is obtained, it is dropped off onto a vibrating bed where workers remove big pieces by hand. The vibrating bed has sieves which separates the sugar crystals according to their size. They are then sent to a crusher which crushes them to the correct size. The crushed sugar is stored in a hopper from where it is bagged (50 kg and 100 kg), weighed and sent to warehouse using horizontal conveyor belt. These are then stored in the warehouse before transporting. The students were able to see various equipments and machineries like boilers, single jet condensers, turbines, crushing mill, centrifuge machines, different types of pumps, cooling ponds, vibrating screens etc. used in the process of sugar production. They were given detailed information of all the machineries and their respective processes by Shri Shridatta alias Darshan Verenker from Chemical Department of the factory. The field visit will definitely help students in the future practical life and bring a positive change in the thinking and practical aspects of engineering education.

The field trip was arranged by Prof. Gajesh G. S. Usgaonkar who is an ex-employee of the Sanjivani Sahakari Sakhar Karkhana Limited. The students were accompanied and also guided by the following faculty members: Prof. B.S.Manohar Shankar, Prof. Mahesh Caisucar, Dr.Suraj Rane and Prof. Gajesh G.S. Usgaonkar.





## Field Visit to Cartini India Limited

Report by Uday Jeware, B.E. Mechanical

The final year Mechanical students, of Goa College of Engineering, who had taken Fluid Power Control as their elective in the final semester, visited Cartini India Limited at Madkai Industrial Estate on 11<sup>th</sup> April, 2015. Prof. B.S. Manohar Shankar



accompanied the students. The company specializes in the manufacturing and assembly of various types of Locks. Most of the processes involved are automated. The company has a raw material store where all the raw material required for the production is stored. The raw material involves coils, strips, rods, etc. For die casting, 'Mazak' is used which is an alloy & is melted in hot chamber dies. Brass & CRCA coils are also used to produce the parts.

The press shop involves shaping (the raw material) coils & rods into locks parts. For this purpose there are hot chamber die and cold chamber die presses. The pneumatic and hydraulic operated cylinders and motors are used for drilling, punching, bending, clamping and other such operations. The timing and control of these operations are done using PLC. The outer cover of the lock is blanked and drawn from the coils. The keys are nested in the stock in order to save the material and increase the percentage utilization of the stock. In the key shop, the key gets their particular shape.

The last unit is the Assembly Shop. In the assembly shop all the parts of the lock are assembled in U-type assembly layout. The first station is the bottom plate assembly station, followed by lever insertion, top plate assembly station, hydro-pneumatic pressing station, inspection station and then packaging. At the inspection station lock mechanism is checked for its functioning. The locks are sent to the band sanding area for the final finishing operation. Surface finish is improved for aesthetic look. Locks are then packed & stored for delivery to the customers.

The field visit was a great learning experience for the students. It helped us to understand the practical aspects and witness the practical applications of Fluid Power Control and Manufacturing thereby cultivating interest in those subjects.



## KUKA Industrial Robot Training at GEC

Prof. B.S. Manohar Shankar and Prof. Mahesh Caisucar attended one week training program on KUKA Industrial ROBOT, held from 2<sup>nd</sup> February to 6<sup>th</sup> February, 2015 in the Industrial Robotics Lab of ETC department of Goa College of Engineering. The Lab is equipped with standard training cell comprising of KUKA KR-16 Industrial Robot with required auxiliary equipment, capable of handling up to 16 kgs of payload. The robot is capable of performing multitude of operations used for welding, painting, gluing, pick and place, palletizing and other essential industrial operations used by the Automobile, FMCG, Packaging and other Manufacturing/Production Industries.

The training was given by expert faculty from KUKA India which encompassed various topics from basics of industrial robots to advanced topics such as task programming. The detailed topics included structure and components of KUKA KR-16 robot, co-ordinate systems, mastering of robot, base and tool calibration, writing and execution of simple motion programs, writing functions and modifying programs, programming of collision detection, using logic functions, manipulation of tools- gripper, working with variables and high level controller such as PLC.

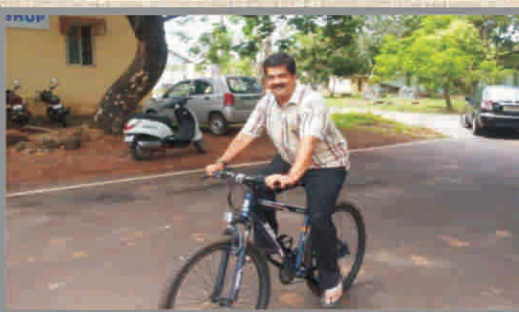
The training standards were at par with KUKA standards. The training contents and course material were designed by KUKA in Augsburg, Germany. Faculty members from different engineering departments were also trained by KUKA to conduct these training programs & carryout research work.





## World Environment Day

World Environment Day is celebrated every year on 5<sup>th</sup> June to raise global awareness to take positive environmental action to protect nature and the planet Earth. The theme for 2015 was 'Seven Billion Dreams; One Planet; Consume with Care'. Seen below are faculty members from the Mechanical Engineering Department, riding bicycle to promote cycling to protect nature.



## Two-Week ISTE STTP on “Environmental Studies”

The two-week ISTE short term training programme on “Environmental Studies”, was conducted by the e-Outreach project of IIT Bombay, from 2<sup>nd</sup> June to 12<sup>th</sup> June 2015, under the National Mission on Education through ICT (MHRD, Govt. of India). Goa College of Engineering, Farmagudi was one of the remote centers across the country. Prof. Milind Sakhardande, remote center coordinator, actively coordinated the STTP. This course has been made a mandatory part of all the curricular across the country by the Honorable Supreme Court orders. Prof. Harichandra Chandekar participated and successfully completed the two weeks STTP.



## International Yoga Day celebrations at GEC





## Seminar on Maintenance Engineering

Report by Dr. Suraj Rane

Students of final year Mechanical Engineering learnt practical applications of Maintenance engineering from speakers with industrial background during a seminar on Maintenance Engineering held on 15<sup>th</sup> April, 2015.

Shri. Maharudra Malwanker, Partner in Impact Integrated Services, Margao, an enterprise involved in taking long term maintenance contracts, spoke on Maintenance in Utility department in Industries with special emphasis on Pharmaceutical sector. He gave deep insights on types of maintenance and maintenance procedures.

Shri. Mahadev Vasant Verlekar, Reliability Engineer – Control System with Syngenta India Ltd., delivered talk on Reliability Centered Maintenance. Students were introduced to RCM methodology, benefits and its various applications. Students appreciated the practical cases discussed during these sessions.



## Indian Institution of Industrial Engineering (IIIE) Graduate Ship Examination

Report by Prof. Gajesh Usgaonkar

IIIE Graduateship Examination was conducted by IIIE, Goa Chapter at GEC from 2<sup>nd</sup> to 10<sup>th</sup> February, 2015. In total 53 candidates from industry answered the exam. The exam was conducted for 29 subjects, spread over nine sessions, each session being of three hours duration. The timing for the sessions was in the evening from 6 pm to 9 pm on working days and on Sunday it was in the morning from 10 am to 1 pm. Prof. Milind J. Sakhardande, Faculty Mechanical Engineering Department, was the Chief Exam Superintendent for this exam, assisted by Professor Gajesh G. S. Usgaonkar also Faculty of Mechanical Engineering Department. The examination was conducted smoothly under the guidance of Dr. Rajesh Prabhu Gaonkar, HMED and Chairman, IIIE Goa Chapter.

Many IIIE members from the institute and industry took active participation in smooth conduct of exam and were also involved in the invigilation work. The candidates answering the exam expressed their gratitude towards the authorities of IIIE, Goa Chapter, GEC and the Principal, GEC for having the centre in the college, which was very convenient for them, the other alternative being to apply for 15 days leave and go to Pune or Bangalore and answer the same.



## **Dr. Shridhar Mhalsekar joins the Department as Associate Professor**

Dr Shridhar D. Mhalsekar joined Goa College of Engineering in Department of Mechanical Engineering as Associate Professor on 6<sup>th</sup> April, 2015. He obtained his B.E. in Mechanical Engineering and M.E. in Industrial Engineering degrees from Goa College of Engineering. He obtained his doctorate degree from National Institute of Technology Karnataka (NITK) Surathkal. His thesis was titled “Development of Prediction System for Tool Wear in Face Milling”



and was carried out under the guidance of Dr. Shrikantha S. Rao and Dr. K. V. Gangadharan of National Institute of Technology, Surathkal, Karnataka.

He began his carrier with Goa Auto Accessories Ltd., Honda, Sattari, Goa. Later he joined the teaching profession as Lecturer in Mechanical Engineering at Institute of Shipbuilding Technology (ISBT), Bogda, Vasco, Goa and has served for 20 years. He has taught subjects like Hydraulics, Fluid Machineries, Material Management, Applied Mechanics, Operation Research, Industrial Engineering, Engineering Graphics etc. Apart from academics he has served as Incharge- Head of the Department (Training & Placement) for over 5 years at ISBT Goa.

His research areas of interest are in Tool Wear Prediction, Recurrence Quantification Analysis and Expert Systems. He has published following papers in International Journals:

1. “Investigation on feasibility of Recurrence quantification Analysis for detecting flank wear in Face Milling” which has been published in International Journal of Engineering, Science and Technology, Volume 2, No. 5, pp.23-28, 2010.
2. “Determination of Transient and Steady State Cutting in Face Milling Operation using Recurrence quantification Analysis” which has been published in ARPN Journal of Engineering and Applied Sciences, Volume 4, No.10, pp.36-46, 2009.

## **Paper presentation in International Journal**

Prof. Mahesh Dhawalikar and Prof. Milind Sakhardande published a paper titled “Hybrid Tool for Optimal Preventive Maintenance Schedule for Deteriorating Systems” in International Journal of Performability Engineering, May 2015.



## **Shri Harichandra Chandekar joins the Department as Assistant Professor**

Shri Harichandra Uttam Chandekar joined Goa College of Engineering as Assistant Professor in the Department of Mechanical Engineering on 5<sup>th</sup> May 2015. He obtained his B.E. Mechanical degree from North Maharashtra University, Jalgaon, and M.Tech. Mechanical CAD/CAM degree from Shri Guru Gobind Singhji Institute of Engineering & Technology, Nanded.



He has teaching experience of five years at Padre Conceicao College of Engineering, Verna, Goa, where he taught subjects like Machine Design, Engineering Graphics, Basic Mechanical Engineering, Engineering Mechanics and Mechatronics.

He has been a resource person for various ISTE-approved short-term training programmes (STTPs) conducted at Padre Conceicao College of Engineering, Verna, such as Finite Element Analysis with ANSYS: Theory and Practice, Industrial Automation and Process Control. He has also conducted workshops for undergraduate students on MATLAB and ANSYS software.

He has research experience of three years in an incubatee company with Society for Innovation and Entrepreneurship (SINE) at Indian Institute of Technology, Bombay. His work dealt with static analysis of laminated composites, modeling fatigue behavior of laminated composites under various loading conditions, studying the role of damage mechanisms in predicting residual life of composite components and importing stress analysis results from FEA software to conduct analysis of residual strength of polymer matrix composite laminates.

He has also worked for one year at Zuari Industries Ltd, Sancoale, Goa, in the field of Condition Monitoring of rotating equipment, using the vibration monitoring technique which enables detection of machinery problems like unbalance, misalignment and prediction of bearing failure.

He is currently pursuing part-time Ph. D at BITS Pilani, K. K. Birla Goa Campus. His research area is in the field of processing and thermo-mechanical characterization of polymer based composites.

## **Paper presentation in International Journal**

Prof. Akshay Nigalge published a paper titled "Students Performance Prediction based on Technique of Artificial Neural Network (ANN)" in International Journal of Advances in Management, Technology and Engineering Sciences, March 2015.-



### List of some students who have done their Internship

Name of the Student	Company Name	Period
Nihar Madkaikar	Netzsch Technologies - Verna	Jan 2015
Vedant Manerkar	MRF Goa Shipyard Limited	July 2014 Jan 2015
Surajdev Singh	Goa Shipyard Limited	Jan 2015
Sarvesh Bhide	Kabamba Transport Corp	Jan 2015
Suraj Lingudkar	Goa Hyundai - Verna	July 2014
John Rebello	Zuari Agro Chemicals Ltd	July 2014
Rajjat Karekar	Goa Hyundai - Verna	July 2014
Ishwar Madkaikar	Goa Hyundai - Verna	July 2014
Raju Gaonkar	MRF Goa Shipyard Limited	July 2014 Jan 2015
Sainand Sopte	Goa Hyundai - Verna	Jan 2015
Shubham Durgavanshi Singh	Goa Shipyard Limited	Jan 2015
Sohan Pai Angle	Goa Shipyard Limited Goa Hyundai - Verna	July 2014 Jan 2015
Sarvesh Sail	Goa Shipyard Limited Goa Hyundai - Verna	July 2014 Jan 2015
Ashley Fernandes	Al- Futtaim Motors - Dubai UAE	July 2014
Vishvesh Gawde	MRF Zuari Agro Chemicals Ltd	July 2014 Jan 2015
Trupti Joshi	ACGL - Honda	July 2014
Ketan Kamat Betkekar	ACGL - Honda	July 2014
Ramanand Chari	MRF Zuari Agro Chemicals Ltd	July 2014 Jan 2015
Chetan Bandodkar	Sesa Goa Ltd.	July 2014
Omkar Shirodker	MRF Zuari Agro Chemicals Ltd	July 2014 Jan 2015
Sahil Naik	MRF Goa Shipyard Limited	July 2014 Jan 2015
Vimal Mangeshkar	Goa Shipyard Limited	Jan 2015
Charles Alemao	Goa Shipyard Limited	July 2014
Umesh Kedar	Kabamba Transport Corp	Jan 2015
Mainak Ash	Sesa Goa Ltd Automobile Workstation	July 2014 Jan 2015



## TORQUE 2015

Report by Deeptej Kudav, B.E. Mechanical

The Mechanical Engineering Students' Association of Goa College of Engineering had organized two day national level techno-cultural fest, "Torque 2015" on 19<sup>th</sup> and 20<sup>th</sup> March 2015. This event was first started in 2010 and since then it is been conducted every year with the event growing from the college level to the national level.

Torque 2015 was inaugurated on 19<sup>th</sup> March at the hands of the Chief Guest for the inaugural function, Shri Suraj Marathe, faculty at Don Bosco College of Engineering, Fatorda. Other dignitaries who were present to grace the occasion were Dr.Vinayak N.Shet, Principal GEC, Dr. Rajesh Prabhu Gaonkar, Head of Mechanical Engineering Department, Prof. Milind Sakhardande, Staff Advisor of the MESA Council and the other teaching and non-teaching staff of the Mechanical Engineering Department as well as the faculty members of the other departments. Students from GEC and from colleges in and outside Goa also attended the function. The function started with the declaring of Torque 2015 open by the Chief Guest. Also the torque 2015 T-shirts were inaugurated by the dignitaries.

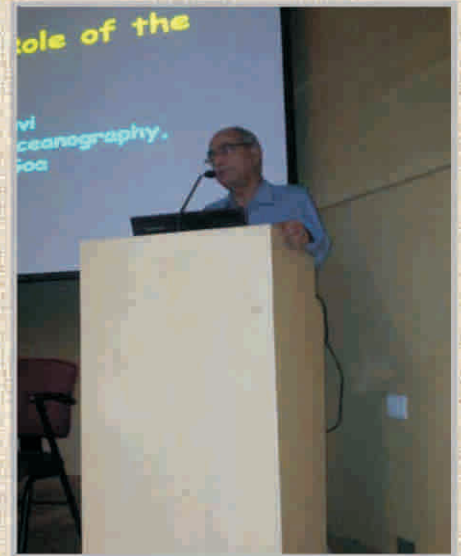
The two day techno-cultural fest consisted of technical events, exhibitions, fun events and talks. The most loved event as is the case every year was the Robowars. As the name suggests, it is a fight between robots; a game of style, control, damage and aggression with the robots pitting against each other in deadly combat. Huge crowd and loud cheers added to the thrill and excitement of the event. Another such exciting event to test the efficiency and power of the robots was the Roborace in which the robots have to race on a track which includes obstacles in the form of stones, leaves, sand and oil. Then there was the Autoquiz, Solidworks workshop and paper presentation which provided the students a platform to showcase their innovative ideas and





creativity. The non-technical events included the F1 simulator, counter strike, FIFA, penalty shootout and hookup.

A talk was delivered by the Director of NIO Goa, Dr. S. W. A. Naqvi on "Effects of Oceans on Climate Change". He informed the audience about the various expeditions and research work carried out by the NIO in finding out how the oceans affect the climate and conveyed the statistics collected over the years to the students in the form of pictures and graphs. The students and even the faculty members had lot of questions for the Director who was much obliged to answer them. There was another talk on "Make in India" by Shri Tulshidas Pai. He shed light on the 'Make in India' campaign introduced by the present Government and how it will affect the Indian economy. He also told about the various measures introduced by the Government to encourage youth to take up entrepreneurship as a career and how we as engineers contribute to the campaign.



The major crowd pulling show, held for the first time, was the Drift Show and the AutoExpo. The drift show was performed by Shri Akshay Kavlekar from team Frankies on the first day while auto show was done in collaboration with Goan Superbikers Club. The students were in for a treat to see the high end cars and bikes. Then there was the stunt show which had everyone enthralled as the stunts were of real high class and a delight to watch.



There was also a weapons expo wherein the weaponry was demonstrated by 6-TTR, Ponda. Ammunitions like INSAS and AK-47 were exhibited.



Torque 2015 was a grand success with the students and faculty members praising and appreciating the efforts of the students of Mechanical Engineering Department in organizing the event. Wishing the juniors all the best in taking forward the Torque legacy and making it an even bigger event in the years to come.





### Demonstration in Fluid Power Control for PCCE students

Students of PCCE, Verna visited the Mechatronics Lab of GEC for demonstration and hands-on, on Vicker's Hydraulic Test Rig and Electropneumatic Test Rig. Prof. Mahesh Caisucar explained the various circuits on both the test rigs and Shri Caetano Pereira carried out the demonstration. The students were accompanied by Prof. Joe Kurian, faculty of Mechanical Department of PCCE.



### Demonstration of Thermal Sensing Camera

Shri Nitin Naik from VSN Technologies demonstrated the use of Thermal Sensing camera. Faculty from Mechanical Engineering department seen using the infrared thermal imaging camera, used to monitor temperature in industrial application.





## Amogh Kamalkar receives best outgoing student for sports

Amogh Yeshwant Kamalkar is a student of final year Mechanical Engineering. He completed his schooling at R.D. Khalap High School, Mandrem, Pernem, Goa and High Secondary Schooling at St.Xavier's HSS Mapusa.

He represented his HSS in the game of chess as well as in volleyball and participated in many inter HSS events. He represented the state for under 19 chess championship at National level, held in Maharashtra. He was a member of the college council for the academic year 2013-2014 which successfully organized college events such as Dahi –Handi, Ganesh Chaturthi , 'TANDAV' and Teacher's day celebrations.

He was part of the organizing committee for 'HAPPENINGS'. He took active participation in cultural events and was part of the team which won Inter-collegiate events such as Youthasia 2014, Vistara 2014, Plexus 2014 and Tatva 2014. He has also represented GEC in Chess and Volleyball and won medals for the same.

He actively participated in the Lusofonia games which were held in 2014 as a volunteer. He has interest in other extra-curricular activities such as playing 'ghumat' and 'kasale' for ghumat arti competitions. He has also participated in many technical events held at GEC, PCCE and NITK Surathkal as well as participated in Aero Modeling workshop, held at GEC in the year 2013-2014 for the event 'Torque' and Robosapiens workshop which was organized by MESA council in year, 2011-2012.





## Cycling: A lot more than just exercise

by Akshay Amshekar, B.E. Mechanical

Cycling reminds all of us, the old school days. In those sporty days, we used to ride the cycle for hours together. City or village roads, playgrounds or paddy fields, single or in group of 10, holidays or exam days, in hot sun or heavy rains, just go on cycling.

Then came the change of era. Suddenly we matured into “college boys” and almost all of us left the cycle for a motorbike. That was the time when I found inspiration for cycling. My beloved sir Ajay Dongre, himself being a pro rider, made me continue cycling as hobby. Also during the same time, I found my 2 old friends as riding mates for long rides.



December 2011,

in the holidays between the semesters, we did something that even we had never dreamed of. Through Indian Cycling Expedition, organised by Kreeda Bharti, we completed Bangalore to Goa cycling adventure in 6 days, at an average of 100 km per day. This Expedition gave me enormous confidence and courage since we all completed the whole ride by overcoming many hurdles.

Later I did many rides, but I cannot resist mentioning two of my favorites, the first being my 200 km ride in a single day from Ponda to Zarap, Sawantwadi and back in around 13 ½ hours. I clicked some photographs on my route, had malvani food and a dive in Terekhol river to get fresh for further ride. The Second ride looked more challenging, because it required more stamina and also parent's permission due to safety issues. It was 100 km “night-ride” from Ponda via Margao-Vasco-Panaji back to Ponda. After starting the ride at 11.30 pm, I was alone to take the decisions and face the things while riding. I enjoyed that ride a lot, which included a halt at 3 Kings Church at 2:00 am in the night.

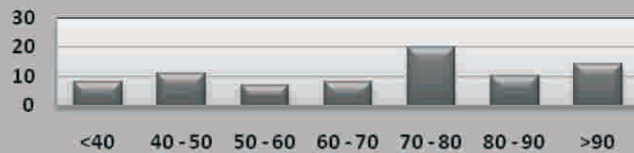
At the end I would only like to say that, don't find silly reasons to avoid one of the best exercises one can enjoy and of course, the happiness you get from it. Start cycling. Get those golden days back. Live a healthy and a happy life.



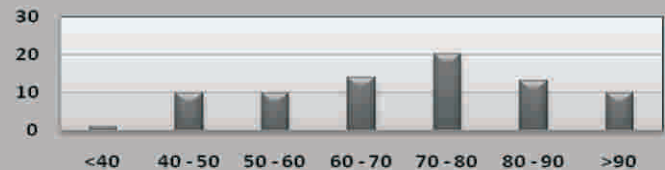
## Result Analysis Nov / Dec 2014 (Number of student's v/s Range of marks)

### SEMESTER III

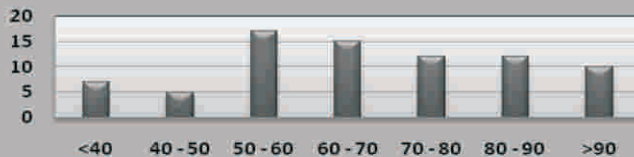
#### Engineering Mathematics



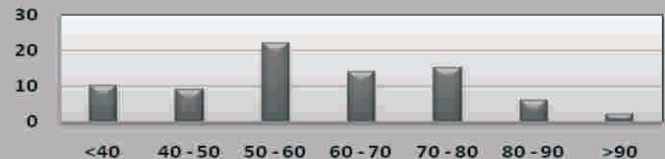
#### Machine Drawing



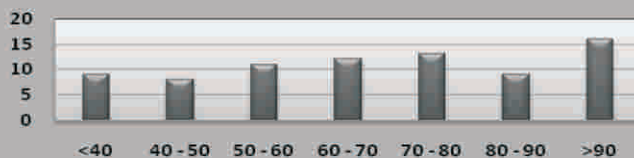
#### Applied Thermodynamics



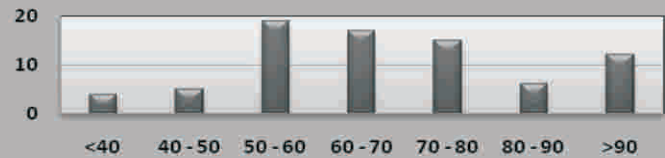
#### Engineering Material Sciences



#### Fluid Mechanics

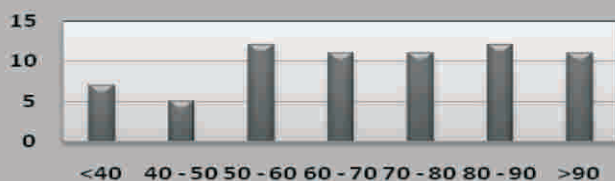


#### Digital Electronics and Microprocessor Application

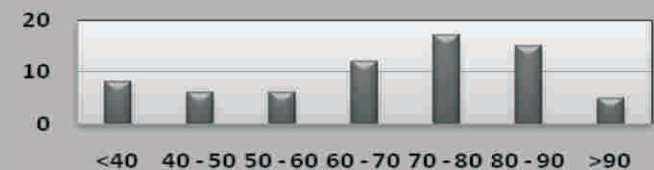


### SEMESTER V

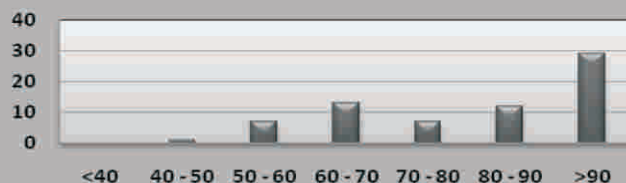
#### Theory of Machines - II



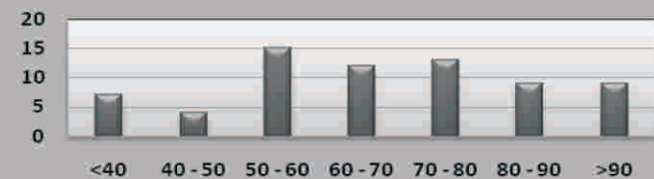
#### Quality Engineering & Management



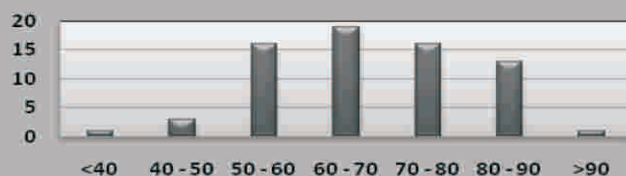
#### Heat and Mass Transfer



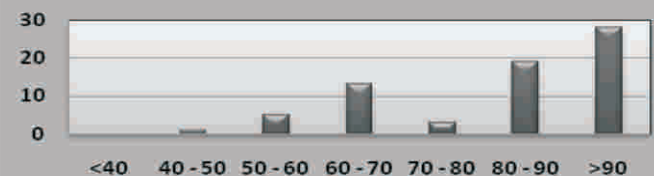
#### Machine Design - I



#### Manufacturing Technology - II



#### Engineering Economics and Mgmt

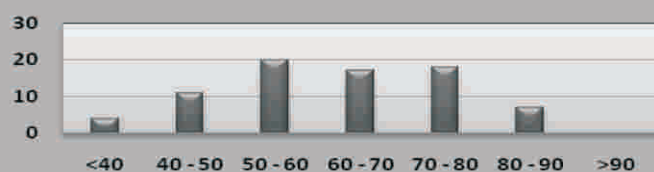




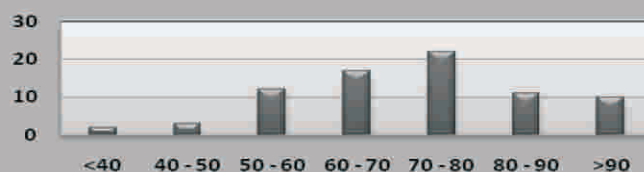
## Result Analysis Nov / Dec 2014 (Number of student's v/s Range of marks)

### SEMESTER VII

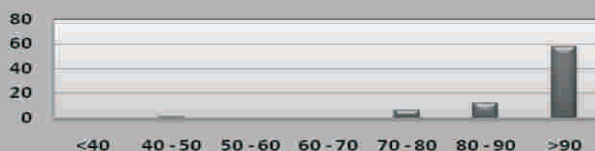
**Reliability Based Design**



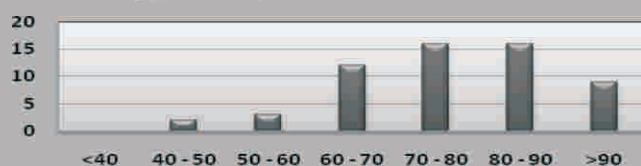
**Refrigeration and Air Conditioning**



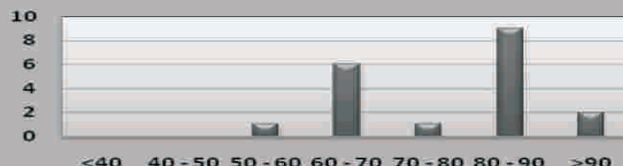
**Manufacturing Technology - III**



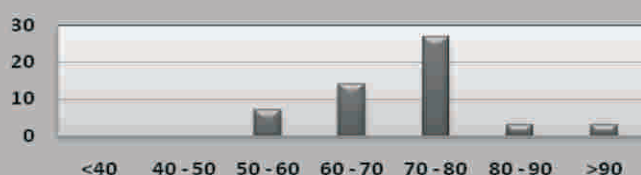
**Applied Operations Research**



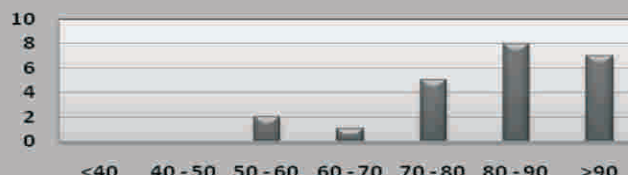
**Automobile Engineering**



**Six- Sigma Management**



**Advanced Mechanics of Solids**



### Placement Data – Even Semester

Name of student	Placement
Neil Almeida	JSW Steel
Uday Arvind Jeware	Sulzer India Ltd.
Shubam Dessai	JSW Steel , Advent Zuari
Shreyas Puttaraju	Goa Tech Solutions
Sohan Rao	Bajaj Allianz General Insurance Company
Vijendra Sawant	IFB Home Appliances
Gautam Pant	CommScope
Raunak Kamat	JSW Steel , Sprineer Design and Sourcing Pvt. Ltd.
Salil Dhumaskar	JSW Steel



## Sports Activities

A friendly cricket match was played between teaching staff of Goa College of Engineering and staff of Don Bosco College of Engineering on 26<sup>th</sup> January, 2015. The match was played at DBCE, Margao. The captain of the GEC team was Dr. Rajesh Prabhu Gaonkar. Dr. V. N. Shet, Principal of GEC, was one of the team members. Most of the Mechanical Engineering faculty were part of the team.



The 2<sup>nd</sup> Staff Badminton, Table Tennis and Carrom Tournament was organized for the staff of the college at the college gymkhana building. Teaching and non teaching staff of Mechanical department actively participated in the sporting event. Dr Suraj Rane reached the semi-final in the badminton event and lost by a narrow margin. Prof. Gajesh Usgaonkar reached the quarter-final in the table tennis event. Dr. Akshay Nigalye showed his skill on the carrom board.





The Mechanical Department team, winners of last year's Engineering Premier League (EPL) tournament, lost in the quarter final based on net



run rate. There were some outstanding contributions from various team members during the tournament, notably among them was the 46 runs scored by Prof. Milind Sakhardande, which included 5 huge sixes. Prof. Gajesh Usgaonkar impressed everyone with his brilliant fielding. Dr Suraj Rane proved to be a consistent performer with the bat along with Prof. Mahesh Dhawaliker.

The following students represented the college at Inter-Collegiate tournament 2014-2015 organised by the Goa University.

Sr.No.	Name	Event	Class
1	YASH DALAL	Cricket	S.E.
2	GOVIND BHANGLE	Cricket	T.E.
3	PARMAR RAHUL	Baseball	T.E.
4	BRENDON D'SOUZA	Basketball	T.E.
5	BRENDON MASCARENHAS	Basketball	T.E.
6	FERNANDES KENNETH	Basketball	T.E.
7	RAHUL KUNDAIKAR	Volleyball	B.E.
8	AMOGH KAMALKAR	Volleyball	B.E.
9	DEEPTAJ KUDAV	Baseball	B.E.



## Final Year Students Project – 2014-15

Sr. No.	Project Title	Student	Guide
1	Design & Fabrication of a Betel Nut Dehusker	Amogh Kamalkar	Dr. Rajesh Prabhu Gaonkar
		Salim Nadaf	
		Vijayendra Sawant	
		Salil Dhumaskar	
2	Design & Fabrication of Mango Pulp Extracting Machine	Chinmay L. Hegde	Dr. Shridhar Mhalsekar
		Gautam Pant	
		Akshay Amshekar	
		Ravi Kumar	
3	Design & Optimization of Macpherson Suspension System in a Quarter Car Model	Asher De Souza	Dr. Raghvendra D Naik
		Uday Jeware	
		Manasi Jahagirdar	
		Shubam Desai	
4	Study & Overall Improvement in Operations of Chemical Industry	Pratik Parsekar	Prof. Mahesh Dhawalikar
		Siddesh Naik	
		Mohit Kesarkar	
		Anjoom Naik	
5	Design & Development of Automated Wall Painting Machine	Joyvin Barreto	Prof. Mahesh Caisucar
		Stafford Lobo	
		Leston Menezes	
		Rajiv Fernandes	
6	Intelligent Reverse Braking for a Four/ Six Wheeler	Gautam Gaonkar	Prof. D. V. Shirodkar
		Sankesh Kaisukar	
		Amit Ishwar	
		Anish Gaude	
7	Development of Remotely Operated Pipeline Inspection Robot	Vishal Daimodkar	Dr. Raghvendra D Naik
		Adhiraj Mopkar	
		Prabhav Sakhardande	
8	Study & Fabrication of Stirling Engine	Sanketh Govekar	Prof. B.R Kulkarni
		Prasad Kajari	
		Faiyaz Wafar	
		Manish Redkar	
9	Design & Development of Electric Powered Stair Climbing Wheel Chair for Paraplegics	Harshad Pingulkar	Prof. Mahesh Caisucar
		Siddhesh Chari	
		Yogesh Gawade	
10	Paddy Cutting Machine	Akshay Mhawalankar	Prof. Mahesh Dhawalikar
		Govind Sawant	
		Aditya Gaonkar	
		Pranav Gaonker	
		Prasheel Naik	



## Final Year Students Project – 2014-15

Sr No	Project Title	Student	Guide
11	Design & Fabrication of Non Powered above Knee Prosthetic Limb	Tejas Garge	Prof. Mahesh Caisucar
		Saiesh Raiker	
		Nikhil Gauns Desai	
12	Productivity Improvement in Urakh / Feni Manufacturing Industry	Steve Vaz	Prof. Milind Sakhardande
		Govindraj Ghodge	
		Terence D'souza	
		Rajesh Sawant	
13	Design & Fabrication of Low Cost UV Dryer	Ajay Kunasekaran	Dr. Suraj Rane
		Aniket Gaunkar	
		Shivkumar Bargi	
		Narsinva Sawant	
14	Improvement in Efficiency of Conventional Furnaces	Billal Shaikh	Dr. Shridhar Mhalsekar
		Ajay Tamhankar	
		Akshay Tamhankar	
		Nikhil Naik	
15	Design and Fabrication of Mobile Biomass Briquetting Unit	Raunak Kamat	Dr. Akshay Nigalye
		Neil Almeida	
		Shreyas Puttaraju	
16	Construction of Werle's Hydrodynamic Tunnel to Conduct Flow Visualization Experiments	Prathmesh Verekar	Prof. B. S. Manohar
		Sohan Rao	
		Dominic Nolan Vaz	
17	To Study and Design New Material Handling System for Diamond Board Warehouse.	Prathamesh Naik	Dr. Vinay Shirodkar
		Vishal Akarker	
		Vaibhav gaunkar	
18	Three Wheeled Autonomous Vehicle	Abhir Phadte	Prof. B. S. Manohar
		Venkatesh Nayak	
		Deeptej Kudav	
		Suraj Kubal	
		Rahul Kundaikar	
19	Design & Fabrication of a Machine for making plates from Areca leaves	Sanketh Mandrekar	Prof. D. V. Shirodkar
		Akshay Sawant	
		Premanand Solyekar	
		Leslie Fernandes	
20	Design & Fabrication of Solar Refrigerator	Deepraj Kudaskar	Prof. B.R. Kulkarni
		Prasad Naik	
		Anup Hodarkar	
		Krusham Narvekar	
21	Artificial Neural Network	Ganaraj Morajkar	Dr. Akshay Nigalye
		Gaurav Rana	



## Bharatiya Vigyan Sammelan

Report by Nihar S. Madkaikar, T.E. Mechanical

The 4<sup>th</sup> Bharatiya Vigyan Sammelan was held at Kala Academy from 6<sup>th</sup> to 8<sup>th</sup> February 2015. This was organised by Bharat Vigyan Parishad in association with Government of Goa.

Goa College of Engineering was provided with an independent stall to display students' projects at this exhibition, alongside major scientific research institutions such as DRDO, ISRO, KVK, HAL, STPI, DST, CSIR. Mechanical students of Goa Engineering College displayed their projects and working models. The stall featured various projects such as 3D Printer, Inverted Pendulum, All Terrain Rover, Quadruped Robot, Quadcopter, RC planes, Go Kart, Biomass Compactor etc. Thousands of visitors visited the exhibition. GEC stalls turned out to be the biggest crowd puller.

Vishal Dhaimodkar, final year Mechanical student, demonstrated his Drone Model at the exhibition. GEC participated in the Idea and Innovation Competition GIC2 (2015) which was an important part of this mega event. GEC students sent 10 entries for innovative ideas. Manohar Satkhalkar, third year Mechanical student, bagged the first prize in group C- Graduate/PG/PhD. Twenty students from GEC worked as volunteers for this event.

There was active participation and support from Principal, Staff and Students of GEC for this event and Shri Jayata Sahasrabudhe, National Organising Secretary of Bharat Vigyan Parishad specially visited GEC and thanked the Principal for the support.





## MESSERGI ACTIVITY

Report by Nihar S. Madkaikar, Technical Advisor, MESA

Final year Mechanical students, conducted a sessions on Robotics for students of Sharda English High School – Durbhat, Ponda, Goa on 28th February 2015 on the occasion of Science Day.

The session was conducted through MESA as a part of MESSERGI activity. MESSERGI stands for Mechanical Engineering Students' Social and Education Responsibility and Green Initiative. Dr. Anant Naik, an ex-student of the same school and currently a professor at GEC, was the chief guest for the function.



The students were glad to learn new things about robotics and showed a lot of enthusiasm in explaining their own projects and getting feedback and suggestions from us young engineers.

Another such activity under MESSERGI was carried out for the students of standard 9<sup>th</sup> of Shri Shantadurga High School, Bicholim on 24<sup>th</sup> June 2015 on the topic of "Things That Fly". The students were explained about the concept of flying by relating the physics of flight to the science in their textbooks. Concepts of pressure, force and Newton's laws of motion through simple but interesting experiments were explored. Videos and a Remote Control plane provided by MESA were used for demonstration.





## Final Year Farewell Function – 2015 batch

The faculty of the department bid adieu to the final year students of 2015 batch, at the farewell function held in the college campus on 6<sup>th</sup> May 2015. Prof. B.S. Manohar did the compering for the function. Principal, Dr. V.N. Shet presented mementoes to the outgoing students of final year. Head of Information Technology Department, Dr. Anant Naik was the chief guest for the function and Head of Mechanical Engineering Department, Dr. Rajesh Prabhu Gaonkar gave a motivational speech to the students citing anecdotes and inspirational stories. The most important advice given was not to get involved in corrupt practices. Other senior faculty in the department also encouraged the students and wished good luck in their future endeavors. The final year students shared their fond memories which were emotional and touching.

















## Message from Dr. A.P.J. Abdul Kalam



(15<sup>th</sup> October 1931 – 27<sup>th</sup> July 2015)

**“My message, especially to young people is to have courage to think differently, courage to invent, to travel the unexplored path, courage to discover the impossible and to conquer the problems and succeed. These are great qualities that they must work towards. This is my message to the young people.”**

### Announcement

Department would be organizing two-week TEQIP workshop (for faculty) in association with Walchand College of Engineering, Sangli from 7<sup>th</sup> to 18<sup>th</sup> December 2015 on "MODELING & SIMULATION" in GEC campus.

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