



Shri Vile Parle Kelvani Mandal's  
**Dwarkadas J. Sanghvi  
College of Engineering**



Approved by AICTE, New Delhi and Affiliated to the University of Mumbai

# ACADEMIC REPORT

July 2013 - Apr 2014

Department of Mechanical Engineering



Prepared by:  
Prof. P Frank Crasta  
Prof. Vaibhav Gudi

Dr K N Vijaykumar  
Professor & Head of Department

# DEPARTMENT OF MECHANICAL ENGINEERING

## **Vision:**

To create academic excellence by developing competent mechanical engineers, capable of facing global challenges, with human values and skills for research and sustainable development.

## **Mission:**

1. To impart fundamental concepts of basic sciences and allied areas of engineering and technology.
2. To enable students, to develop into competent engineering professionals.
3. To promote research activities.
4. To promote interaction and involvement with professional bodies and industries
5. To inculcate soft skills and professional ethics and mold students as socially responsible citizens.
6. To promote exposure to green technology for sustainable growth and development.

## **Program Educational Objectives (PEO's):**

1. To prepare students with a sound engineering knowledge and a multi-disciplinary approach.
2. To enable students, to innovate, design and develop engineering systems using modern engineering practices and tools.
3. To motivate students, to interact with industry and professional bodies and participate in various professional activities.
4. To develop logical approach, analytical thinking and problem solving capabilities in students & facilitate them to undertake research/project work.
5. To impart training in soft skills and value education.

## **Program Specific Outcomes (PSO's):**

1. Students will acquire analytical and application skills, specifically in areas of mechanical design, thermal engineering and manufacturing systems.
2. Students will be able to explore various methodologies & software and select appropriate process to bring about improvements.
3. Students will acquire soft skills, value education and competency in pursuing higher studies and finally lead a professional career while working in a global environment.
4. Students will be exposed to green technology and develop inter-disciplinary skills in mechanical systems.

# 1. Staff Details

## 1.1 Publications and Presentations

Type	Name of the faculty	Description
National Conference	Dr.K.N.Vijaya Kumar:	<p>1) Dr. K. N. Vijayakumar – “<i>Industrial automation, a brief survey of the past, present and the future</i>”. National Conference on Computer Science, Information Technology and Management held on 6<sup>th</sup> &amp; 7<sup>th</sup> March 2014 at Sinhgad Institute of Computer sciences (MCA) Pandharpur.</p> <p>1.</p> <p>2) Dr.K.N.Vijaykumar, Mr. Manjunath Joshi &amp; Dr.T.C. Manjunath - <i>Fuzzy Logic Problem Solving Strategy Development for Control System</i>. NCETOA-2014 (National Conference on Evolutionary Optimization Techniques and Applications) held at Govt. Polytechnic Bandra on March 11-12 2014.</p> <p>3) Dr.K.N.Vijaykumar, Ms. Shreya Kadwadkar- “<i>Contribution of DOE in the field of Turning Process Optimization</i>”. ICEFT-14 (International Conference on Eco-Friendly Technologies for Sustainable Growth held on 27<sup>th</sup> &amp; 28<sup>th</sup> March 2014) in M.H.Saboo Siddik College of Engineering.</p> <p>4) Dr.K.N. Vijayakumar &amp; Ms. Rachana- “<i>Inventory Control using ABC Analysis</i>” ICEFT-14 (International Conference on Eco-Friendly Technologies for Sustainable Growth held on 27<sup>th</sup> &amp; 28<sup>th</sup> March 2014) in M.H.Saboo Siddik College of Engineering.</p> <p>5) Dr.K.N. Vijayakumar &amp; Mr. Vimal – “<i>Comparison of Quality Improvement Techniques – Shainin System vs. Six Sigma Technique</i>” ICEFT-14 (International Conference on Eco-Friendly Technologies for Sustainable Growth held on 27<sup>th</sup> &amp; 28<sup>th</sup> March 2014) in M.H.Saboo Siddik College of Engineering</p>

		<p>6) Dr.K.N.Vijaykumar &amp; Mr.Dhanwade –  <i>“Natural Convection heat transfer Flow Visualization of Perforated Fin Arrays by CFD Simulation”</i>. IRJET- International Journal of Research in Engineering and Technology Vol - 2 Issue 12 December 2013</p> <p>7) Dr.K.N. Vijayakumar &amp; Mr. Aditya – <i>“An Overview of Total Productive Maintenance &amp; Overall Equipment Efficiency Measurement”</i>. ICEFT-14 (International Conference on Eco-Friendly Technologies for Sustainable Growth held on 27<sup>Th</sup> &amp; 28<sup>Th</sup> March 2014) in M.H.Saboo Siddik College of Engineering.</p> <p>7) Dr.K.N. Vijayakumar &amp; Mr. Saurabh – <i>“Lean Manufacturing: A step Towards Green future – a Review”</i> ICEFT-14 (International Conference on Eco-Friendly Technologies for Sustainable Growth held on 27<sup>Th</sup> &amp; 28<sup>Th</sup> March 2014) in M.H.Saboo Siddik College of Engineering.</p> <p>8) Dr.K.N. Vijayakumar &amp; Mr. Adnan - <i>“Green Supply Chain Management Practices in Automobile Industry”</i>. ICEFT-14 (International Conference on Eco-Friendly Technologies for Sustainable Growth held on 27<sup>Th</sup> &amp; 28<sup>Th</sup> March 2014) in M.H.Saboo Siddik College of Engineering.</p> <p>9) Dr.K.N. Vijayakumar &amp; Ms. Rachana – <i>“Role of Inventory Management on cash flow an overview”</i>. ICWAME – 2014 (International Conference and Workshop on Advances in Mechanical Engineering held on February 28<sup>Th</sup> &amp; 1<sup>St</sup> March 2014. in Thakur College of Engineering and Technology.</p> <p>10) Dr.K.N. Vijayakumar &amp; Mr. Pathak – <i>“Optimization of turning process parameter using Taguchi Method – A case study”</i>. ICWAME – 2014 (International Conference and Workshop on Advances in Mechanical Engineering held on February 28<sup>Th</sup> &amp; 1<sup>St</sup></p>
--	--	--

		<p>March 2014. in Thakur College of Engineering and Technology.</p> <p>11)Dr.K.N. Vijayakumar &amp; Mr. Sameer-“Optimization of Machinery Techniques”. Accepted in ICWAME – 2014 International Conference and Workshop on Advances in Mechanical Engineering held on February 28Th &amp; 1St March 2014. In Thakur College of Engineering and Technology.</p> <p>12). Dr.K.N. Vijayakumar &amp; Mr. Pathak “Surface response methodology.-A review” Techno focus A Journal for Budding Engineers Vol 4 Issue 2 March 2014.</p>
	Prof P.Frank crasta	Presented National level technical paper entitled “Optimisation Techniques-A Review” at MHSSCOE, Mumbai in March 2014
	Prof Ramesh rajguru	<p><i>1) “Desirability Fuzzy Multiple criteria Optimization of Process Parameters in CNC Turning of GFRP/ Vinyl ester Composites “accepted for oral presentation in the International conference on Advances in Manufacturing and Materials Engineering (ICAMME-2014 ) being held during March 27-29, 2014 and published by Elsevier Journal “Procedia Material Science”. (With Dr. Hari Vasudevan and N.C.Deshpande).</i></p> <p><i>2) .“An Experimental Investigation into the Optimization of Cutting Force in CNC Turning of Woven Fabric based GFRP/Epoxy Composites using PCD Cutting Tool ”</i> accepted for presentation in the International Conference on Design, Manufacturing and Mechatronics organized by Trinity college of engineering and research Pune, Maharashtra, from 9<sup>th</sup> – 10<sup>th</sup> Jan.2014 (with Dr. Hari Vasudevan and N.C.Deshpande).</p> <p><i>3).“An Experimental Investigation into the Optimization of Cutting Force in CNC Turning of Woven Fabric based GFRP/Epoxy Composites using PCD Cutting Tool”,</i> in the International Conference on Design, Manufacturing and Mechatronics (ICDMM-2014) organized by KJEI’s Trinity College of</p>

		<p>Engineering and Research, Pune from 9th to 10th January 2014. (with Dr. Hari Vasudevan and N.C.Deshpande).</p> <p>4). <i>“An Experimental Study on the Performance and Emission Characteristics of a Single Cylinder Diesel Engine Using CME-Diesel Blends”</i>, in the International Conference on Renewable Energy and Sustainable Development (ICRES D-2014) organized by KJEI’s Trinity College of Engineering and Research, Pune from 9th to 10th January 2014. (With Dr. Hari Vasudevan and N.C.Deshpande).</p> <p>5). <i>“Experimental Investigation and Optimization of Milling Parameters in the Machining of NEMA G -11 GFRP Composite Material using PCD Tool” (AIMTDR-O0223)</i>,, accepted for oral presentation in the International conference on All India Manufacturing Technology, Design and Research (AIMTDR-2014) Conference being held at Indian Institute of Technology Guwahati, Assam, India during December 12-14, 2014. (with Dr. Hari Vasudevan and N.C.Deshpande).</p> <p>6) <i>“Utility Fuzzy Multiobjective Optimization of Process Parameters for CNC Turning of GFRP/Epoxy Composites” (AIMTDR-O0221)</i>, accepted for oral presentation in the International conference on All India Manufacturing Technology, Design and Research (AIMTDR-2014) Conference being held at Indian Institute of Technology Guwahati, Assam, India during December 12-14, 2014. (With Dr. Hari Vasudevan and N.C.Deshpande).</p> <p>7) <i>“Experimental Investigation and Optimization in Edge Milling of NEMA G-11 GFRP/Epoxy Composites”</i> accepted for oral presentation in the International conference on Advances in Manufacturing and Materials Engineering (ICAMME-2014) being held during March 27-29, 2014 and published by Elsevier Journal</p> <p>8). <i>Delamination in Machining of Composite Materials: A Review in the Context of Drilling Operation”</i> in the National Conference on</p>
--	--	--

		<p>Emerging Trends in Engineering, NCETE-13, during 4th &amp; 5th January 2013, organized“ by M.H.Saboo Siddik College of Engineering, Byculla, Mumbai (with Dr. Hari Vasudevan and N.C.Deshpande).</p> <p>9). “<i>Analysis of a Multi-criteria optimization problem using Taguchi and Grey relational analysis: A case study in the machining of composite materials</i>” in the International Conference on Advances in Mechanical Engineering organized by the department of Mechanical Engineering, College of Engineering Pune, Maharashtra, from 29th-31st May 2013 (with Dr. Hari Vasudevan and N.C.Deshpande )</p> <p>10). “<i>Study of Cutting Force in CNC Turning of Woven Fabric based GFRP/Vinylester Composites using PCD Cutting Tool</i>” in the International Conference on Advanced Manufacturing and Automation (INCAMA-2013, ISBN 978-93-80686-50-9) organised by the Department of Mechanical Engineering (DST-FIST Sponsored) Kalasalingam University, Madurai, Tamil Nadu from the 28th-30th March 2013 (with Dr. Hari Vasudevan and N.C.Deshpande).</p>
--	--	---

## 1.2 Staff contribution

Sr no	Name	Workshop /seminar details
1	Dr Vijay Kumar kottur	Syllabus committee meeting for Mechanical and Production Branch
2)	Prof.Prasad Shirodkar	Syllabus committee meeting for Mechanical and Production Branch ‘ERP’ and SOM subjects
3)	Prof.P. Frank crasta	-Syllabus committee meeting for Mechanical and Production Branch MMFT subject and PPIII -Participated in certificate programme, E-Foundry-casting Design and Simulation- held on 26 <sup>th</sup> October 2013 at VJTI, Mumbai

# 1.3. Student Chapters

## I S.A.E

S.A.E stands for Society of Automotive Engineers. Automotive Engineering being an allied branch of Mechanical Engineering, this student chapter was one of the very first and the largest student chapter in DJ Sanghvi College of Engineering in terms of number of students of Mechanical and Production Engineering inducted in the chapter. Considering that SAE student chapter is among the youngest in DJ Sanghvi, the organizing committee managed to put-up numerous events which include competitions, industrial visits, guest lectures, workshops and value added programs.

### 1) Value Added Program

- 1) German Language Study conducted between August 2013 and February 2014 [60 sessions, each session of 3 hours each] in premises of Mechanical Department, DJSCOE by Mrs. Ujwal Anil [Language Consultant]
- 2) Solidworks Modelling Software Study conducted between January 2014 and March 2014 in premises of Mechanical Department, DJSCOE by CADD Centre India

### 2) Competitions

- 1) SAE BAJA India – National Level Off-road Racing Competition conducted by SAE India in collaboration with Mahindra & Mahindra.

At Indore in Feb 2014

- 2) Formula Student Germany

International Race Car Design Competition conducted by SAE International

Students have a hands-on experience on designing and manufacturing off-road as well as racing vehicles due to the initiatives taken by student members of SAE to participate in SAE BAJA India and Formula Student Germany July 2014

### 3) Workshops;

- 1) Aero-modeling Workshop conducted on 29th Sept- 2nd Oct- 6th Oct '13 by VJTI SAE Aero Club

- 4) Industrial Visits;



1) Volkswagen and Terex Cranes [Chakan, Maharashtra] on 12th October 2013

2) Zenith Birla Steel Pipes [Khopoli, Maharashtra] on 13th March 2013

## **5) Guest Lectures;**

1) Talk on introduction and scope of Computational Fluid Dynamics in Mechanical Engineering conducted on 12th February 2014 by Dr. R. S. Maurya (PhD. Computational Fluid Dynamics, Professor SPCE)

2) Talk on Skills Required by Mechanical/Production Engineers in Industry conducted on 8th August 2013 by Mr. Pradeep Ranade [GM, Product Development, Siemens Corp.] and Mr. Anil Dipnaik [Chief Manager, Product Development, Siemens Corp.]

3) Talk on Robotics conducted on 4th March 2014 by Dr. James Mclurkin (Asst. Professor, Rice University)

## **II ISHRAE**

Indian Society of Heating Refrigeration and Air Conditioning Engineers (ISHRAE) is a society aimed at advancement of the sciences of Heating, Refrigerating and Air conditioning Engineering and related Sciences. It imparts Education in the fields of Air-Conditioning, Refrigeration and Allied Sciences by conducting Training Courses, Workshops, Seminars and by awarding Diplomas or Certificates. This student chapter was started in this academic year. Though it being a very young student chapter, has organized many events like seminars, industrial visits, technical visits and value added programs.

Following is a brief Description of all activities conducted by ISHRAE for the academic year 2013-14:

\* An invited talk by Mr. Vikram Murthy was conducted on 19th March 2014 on the topic of Introduction to Air Conditioning and Skills required by Mechanical Engineers in Industry.

\* An industrial visit to Reliance Thermal Power Plant, Dahanu, Maharashtra was conducted on 20th march 2014.

\* A technical visit to I.I.T. Bombay was conducted on 13th march 2014 to attend a seminar on Energy Efficient Homes and to see the working model.

Ansys software training, a value added program for analysis of structural models was conducted for the students of third year Mechanical Engineering by CADD CENTER.

ISHRAE is working towards achieving its goal of inculcating interest in the fields of refrigeration, air conditioning and ventilation amongst the students and the students have benefited greatly from its efforts. Students have developed a new perspective in the field of RAC and HVAC. With the help of the ansys training program. Students have become well versed with the analysis of structural components. ISHRAE has helped to make a raw subject like HVAC and RAC much more practical and easier for students.

### **III R.A.S**

R.A.S stands for Robotics And Automation Society . It's a inter departmental society under branch of Mechanical Engineering, this student chapter was one of the very recent and aimed to be largest student chapter in DJ Sanghvi College of Engineering in terms of number of students . Considering that RAS student chapter is among the youngest in DJ Sanghvi, the organizing committee planned to conduct numerous events which include competitions, industrial visits, guest lectures, workshops and value added programs.

### **IV I.S.M.E**

#### **1. Brief Description of Activities conducted during 2013-14:-**

ISME stands for Indian Society Of Manufacturing Engineers, Dealing with manufacturing sector which is regarded as most integral part of any industry. ISME aims at advancing knowledge in the field of manufacturing engineering and management and providing means and methods for applying such knowledge in practice. In the very first year of ISME student chapter in D J Sanghvi, the organizing committee managed to put of 11 events which comprises of – Value Added Programs, Industrial Visits, Workshops and Guest Lectures in a short span. And over the period of time, it has imparted knowledge to over more than 200 members comprising of students from both Mechanical & Production Engineering.

Following is a brief description of all the activities held under ISME for the academic year 2013-14 :-

#### **Value Added Program:-**

1. Value Added Program - Value Engineering and Management conducted by Mr. J Sathe, a respected member of INVEST and a consultant in TCS having industrial experience of over 30 years.

The program comprised of 3 day session ( 6 hours daily ) which involved students from both Mechanical & Production Engineering Department wherein group of participants were given projects based on industrial application for enhancing the value of a product in terms of cost reduction, product design, customer satisfaction etc. At the end of this informative program the participants were provided certificates issued by Indian Value Engineering Society.

### **Industrial Visits:-**

1. Practical knowledge was gained by students of semester III Mechanical Engineering during their first Industrial Visit to Kela Industries [Sinhar, Nashik] which manufactures LPG gas cylinders on 12th September, 2013.
2. The students of IV semester Mechanical Engineering were provided with the opportunity to visit one of the top manufacturing companies Larsen & Toubro [L&T] situated in Powai, Mumbai on 8th February, 2014.
3. The students of IV semester Mechanical Engineering were taken to Mukand Ltd [Thane, Maharashtra] which mainly deal with Sheet Metal Rolling on 3rd March, 2014.
4. The students of VI semester Mechanical Engineering were taken to Reliance Industries [Dahanu] in their Power Generation unit on 20th March, 2014.
5. The students of VI semester Production Engineering were taken to Volkswagen Ltd situated in Chakan, Maharashtra which is a leading Automobile Company on 20th March, 2014.

### **Workshops:-**

1. The workshop entitled “Secret of Success” was conducted by Mr. Sunil Kangane, a leading member of ISME and owner of reputed automation company Invotec on 11th January, 2014.

### **Guest Lectures :-**

1. An Invited talk on Heat Treatment Mrs. Sonali Dhar, a visiting faculty of Mechanical Engineering department in the month of October, 2013.
2. An invited talk on Various Aspects of Manufacturing by senior & respected Godrej officials was conducted in the month of October, 2013.
3. An Invited talk on Role of IT in Manufacturing Industries by a Professional TCS Consultant was conducted on 31st January 2014.

4. An invited talk on “Six Sigma” by Dr. R L Shrivastava [ Senior Faculty of Mechanical Engineering Department in Yeshwantrao Chavan College of Engineering ] was conducted on 5th March,2014.

Contribution of the chapter to the Overall development of Department and Allied Branches :-

The hard work and determination of the organizing committee has helped in incorporating over 200 students in ISME student chapter. The activities conducted throughout the academic year has helped members gain valuable knowledge and hands-down experience in the field of manufacturing. The “Secret of Success” workshop has helped over 70 students in creating a base for those who aspire to be future entrepreneurs. The “Value Engineering” program has helped over 20 students who are now practically capable for encountering real life problems and situations faced during manufacturing. ISME aims at creating a strong hold in the field of manufacturing and strongly establish itself by providing base to its members who are interested in manufacturing. Our aim is to help create “WINGINEERS” rather than just “ENGINEERS”.

## **2. STUDENT DETAILS**

### **RESULT ANAYSIS**

<b>CLASS</b>	<b>TOTAL</b>	<b>DISTINCTION</b>	<b>FIRST CLASS</b>	<b>SECOND CLASS</b>	<b>FAILED</b>	<b>%RESULT</b>
<b>SE</b>	<b>142</b>	<b>109</b>	<b>16</b>	<b>3</b>	<b>13</b>	<b>90.84%</b>
<b>T.E</b>	<b>73</b>	<b>73</b>	<b>17</b>	<b>1</b>	<b>22</b>	<b>69.86%</b>