



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



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

MECHEXEL

Academic Report of the Department of Mechanical Engineering
(2014-2015)



Editors:

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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. About the Department:

- Department of Mechanical Engineering instituted in the year 2011 with undergraduate (BE) and post graduate (ME) programme affiliated to the University of Mumbai.
- The department has Ph D (Technology) programme since 2013, which is affiliated to the University of Mumbai.
- Intake BE : 120, ME:18, Ph D : 10
- The department runs four professional student chapters viz. SAE, ISME, ISHRAE and RAS which help to enhance the skills of the student and also to add value in the process of acquiring knowledge.

2. ADMINISTRATION

Dr. K N. Vijay Kumar
Professor & HOD

• Teaching Staff

Prof. Prasad Shirodkar
Assistant Professor

Prof. Prof. Vyankatesh Bagal
Assistant Professor

Prof. Rajnarayan Yadav
Assistant Professor

Prof. P Frank Crasta
Assistant Professor

Prof. Dhaval Birajdar
Assistant Professor

Prof. Prashant R Patankar
Assistant Professor

Prof. Rohit Chaurasia
Assistant Professor

Prof. Vinit Katira
Assistant Professor

Prof. Ranjeet Gupta
Assistant Professor

Prof. Ramesh R Rajguru
Assistant Professor

Prof. Shreya Kadwadkar
Assistant Professor

Prof. Dharam Ranka
Assistant Professor

Prof. Jayshri Gadkar
Assistant Professor

Prof. Saurabh Vichare
Assistant Professor

Prof. Aditya Jawlekar
Assistant Professor

Prof. Adnan Shaikh
Assistant Professor

- **Visiting Faculty**

Dr. Dinesh Hegde,
Retd. Dean, NITIE

Prof. S. Satalkar

Prof. Sonal Dhar

- **Non-Teaching Staff**

Mrs. Vaishali Joshi

Mr S Mohite

Lab. Assistant

Lab. Attender

• **Committees**

SAE

Prof. Rajnarayan Yadav

ISME

Prof. R. Khavekar

Prof. P. Frank Crasta

ISHRAE

Prof. Vyankatesh Bagal

Prof. Dhaval Birajdar

RAS

Prof. Rajnarayan Yadav

Prof. Saurabh Vichare

Project Committee

Prof. Vinit Katira

Prof. Rohit Chaurasia

Time-Table Committee

Prof. Vyankatesh Bagal

Prof. Rajnarayan Yadav

Departmental Library Committee

Prof. Dharam Ranka

Prof. Aditya Jawlekar

Sports Committee

Cultural Committee

Prof. Ramesh R Rajguru

Prof. Shreya Kadwadkar

Placement Coordinator

Exam Coordinator

Prof. Dhaval Birajdar

Prof. Dhaval Birajdar

U. G. Coordinator

Prof. Shreya Kadwadkar

P. G. Coordinator

Prof. Prashant R. Patankar

Ph D Coordinator

Prof. P Frank Crasta

3. STUDENT CHAPTERS

3.1 Society of Automotive Engineers (SAE)

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.

(i) Value Added Programs

- ✚ Solid Works Modeling Software Training conducted between August 2014 and December 2014 in premises of Mechanical Engineering Department, by CADD Centre Mumbai.
- ✚ German Language classes conducted between January 2015 and May 2015 in the premises of Mechanical Engineering Department, by Mrs. Ujwal Anil a language consultant.

(ii) Competitions

- ✚ Participated in Formula Student Germany an International Race Car Design Competition conducted by SAE International in July – August 2014 at Hockenheimring, Germany.



Car No. 77 of DJS at Germany

- ✚ Participated in BAJA Student India – National Level Off-road Racing Competition conducted by SAE India in collaboration with TATA Motors in January 2015.



DJS KRONOS at Jamshedpur

- ✚ DJS Skylark is the official Aero Design Team of D. J. Sanghvi College of Engineering under SAE student's chapter. The team wanted to design an aircraft credible enough to be able to compete at an international level with the best teams in the world.

The team represented our college on an international level by participating in the SAE Aero Design East competition which was held this year at Lakeland, Florida from 13th March to 15th March 2015 and it stood 17th worldwide and 2nd in India in our category.



Skylark plane '*Achilles*'



Achilles with pilot



Skylark Team Members

(iii) Guest Lectures

- ✚ Talk on “3D printing, a New Tool to Unlock Fragile Ideas” on 19th September, 2014 by Dr. Guruprasad Rao (Director-Technology & Operations at Imaginarium India Pvt Ltd,) Research Scholar at Indian Institute of Technology, Bombay.
- ✚ An invited talk on “Engineering Capabilities in Process Equipment Management” by Mr Alex Tellis of M/s Godrej and Boyce Ltd. Vikhroli was conducted on 4th February 2015.
- ✚ A Guest lecture was held on “Jet Propulsion Engine” by Mr F A Shaikh of Air India on 2nd March 2015.

3.2 Indian Society Of Manufacturing Engineers (ISME)

ISME deals 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 DJ 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.

(i) Value Added Programs

- ✚ ISO/TS 16949 Automotive Standards Value Added Programme was conducted on September 12 to September 14, 2014 by Mr J. Sathe wherein he inculcated and explained the role of critical analysis in any task/process/product/design.

- ✚ Product Design and Management (Technical Lecture Series) by L & T personnel on 29th and 30th January 2015. This lecture series was conducted for undergraduate students from three branches of engineering, namely mechanical, production and electronics. The lectures are helpful to students as it introduced them to the concept of designing and managing a product by explaining the measures that need to be taken before and after designing the parts. It also provided the students with a chance to get hands on experience with specialized L&T products.

- ✚ 3D Printing Workshop by 3D-Ware on 27th and 28th February 2015. The workshop was an interactive session

between the highly knowledgeable 3D-Ware professionals and the undergraduate students from Mechanical and Production departments. The sessions designed covered all the important details in an appropriate sequence that helped the students to understand the content properly. Many 3D models were also circulated throughout the event for better understanding and visualization of the topic. It was concluded by hands on experience session with the 3D printers which helped students to learn the technique of 3D printing.

(ii) Seminar and Project Presentation

A seminar and project presentation, “Expanding Horizons in Manufacturing Sector” was held on 16th and 17th March 2015 under the aegis of ISME Mumbai chapter, Production Engineering Department and Mechanical Engineering Department. Eminent Professors and industry experts shared their experiences in modern manufacturing systems and techniques. An Inter-Collegiate project competition was also held, which exhibited technical projects of students.

(iii) Guest Lectures

✚ An invited talk on ‘Total Quality Management’ by Mr K B Bharati (Director, QCFI India) focussed on improvement of quality and implementation of Total Quality Management Concepts in Indian Manufacturing Industry.

✚ An invited talk on ‘Made in India From an Idea to Reality’ by Dr B Ravi Professor IIT Bombay on 23rd September 2014 emphasized the use of E Foundry and ORTHOCAD.



Dr B Ravi –IIT Bombay delivering a lecture on ORTHOCAD

✚ An Invited talk on “Campus to Corporate” by our alumnus Mr Darshit Shah was conducted on 11th February 2015.

(iv) **Industrial Visits**

✚ The students of III semester Mechanical Engineering were given exposure to the manufacture of LPG cylinder at M/s Kela Industries Nasik on 4th August 2014.

✚ The students of Third Year Mechanical Engineering were provided with the opportunity to visit Reliance Thermal Power Plant Dahanu on 23rd and 24th February 2015.

✚ The students of Final Year Mechanical Engineering visited M/s BEST, Dadar on 5th March 2015.

✚ The students of First Year Mechanical Engineering visited M/s Volkswagen India Ltd. Pune on 30th March 2015 and 1st April 2015

- ✚ The students of Second Year Mechanical Engineering visited M/s Volkswagen India Ltd. Pune on 6th and 9th April 2015

3.3 Indian Society of Heating Refrigeration and Air Conditioning Engineers (ISHRAE)

This 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.

(i) Value Added Program

- ✚ Workshop on assembly and disassembly of air conditioner 9th August'2014.
- ✚ ANSYS software training. From September'14 – December'14 by CADD Centre.
- ✚ Workshop on assembly and working of Refrigerators by M/s Himalaya Cool Services on 9th February 2015. The Workshop was conducted by industry professionals with more than 15 years of experience. It included live demonstration of the assembly and working of a domestic refrigerator. The speakers also showed the working of an industry-level compressor assembly.

(ii) Guest Lectures

- ✚ Seminar on Career Opportunities Abroad September' 2014 by Ms. Purvi Tantia from Ace Consultancy.

✚ An Invited talk on “Solar energy” by Ankit Barasia, Director-Solar Inertia was conducted on 11th February 2015.

✚ A Guest lecture was held on “Piping” by M/s Suvidya Institute of Technology, Santacruz on 13th March 2015.

(iii) Industrial Visits

✚ Visit to Prijay Heat Exchangers dated 28th August 2014 by experienced professionals from Himalayan Cool Services.

3.4 Robotics and Automation Society (R.A.S)

R A S is an 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.

✚ D J Sanghvi College of Engineering’s “Robotics and Automation Society (RAS)”, participated in Robocon India 2015 held by MIT, Pune from 3rd March to 7th March. The Asia-Pacific Robot Contest (ABU Robocon) is an Asian Oceanian College robot competition in which a robot or a set of robots are given a task to complete within a given time frame. The theme for year 2015 was “ROBOMINTON: BADMINTON ROBO-GAME”. This year, the country level competition was held at Balewadi Stadium by MIT, Pune. Our college participated in this competition for the first time so our main intention was to create awareness about this competition which would give a good technical exposure to the entire team.



DJS Robocon Team at MIT Pune

4. STUDENT ACHIEVEMENTS

4.1 Technical Paper/Project Presentation

- ✚ Mr Yash Rana of Third Year has secured third position in intercollegiate Project Presentation held on 16th and 17th March 2015 at D J Sanghvi College of Engineering, Vile Parle organized by ISME Mumbai chapter and DJSCE.

4.2 Extra Curricular Activities

- ✚ Mr Ronit Patil of Third Year has won the intercollegiate squash championship held at MIT Pune in October 2014.
- ✚ Mr Jay Shah of Third Year has won the overall championship (mens) award at DJ Sanghvi Sports Meet held on 16th January 2015.
- ✚ Mr Jay Shah of Third Year was the winner in 100 meter sprint (mens) at national level sports meet held from 10th December to 30th December 2015 at VJTI, Matunga, Mumbai.

5. PUBLICATIONS AND PRESENTATIONS OF THE FACULTY MEMBERS

Type	Name of the faculty	Description
International publications (1-6) & International Conference (7-11)	Prof Ramesh Rajguru	<ol style="list-style-type: none"> 1. <i>“Grey Fuzzy Multiobjective Optimization of Process Parameters for CNC Turning of GFRP/Epoxy Composites”</i> in Elsevier Journal “Procedia Engineering” vol. 97 (2014) pp. 85–94 (doi: 10.1016/j.proeng.2014.12.228) (with Dr. Hari Vasudevan and Naresh Deshpande). 2. <i>“Desirability Fuzzy Multiple criteria Optimization of Process Parameters in CNC Turning of GFRP/ Vinyl ester Composites”</i> in Elsevier published Journal “Procedia Material Science” Vol. 5 (2014) pp. 2458 – 2467 (with Dr. Hari Vasudevan and Naresh Deshpande). DOI: 10.1016/j.mspro.2014.07.497 3. <i>“Experimental Investigation and Optimization in Edge Milling of NEMA G-11 GFRP/Epoxy Composites”</i> in Elsevier published Journal “Procedia Material Science” Vol. 5 (2014) pp. 2105 – 2114 (with Dr. Hari Vasudevan and Naresh Deshpande). DOI: 10.1016/j.mspro.2014.07.546 4. <i>“Multiobjective Optimization of Drilling Characteristics for NEMA G -11 GFRP/Epoxy Composite using Desirability Coupled with Taguchi Method ”</i> in Elsevier Journal “Procedia Engineering”vol.97(2014)pp.522–530
International publications	Prof Ramesh Rajguru	

<p>(1-6) & International Conference (7-11)</p>		<p>(doi:10.1016/j.proeng.2014.12.278) (with Dr. Hari Vasudevan and Naresh Deshpande).</p> <p>5. <i>“A study on Edge Milling Operation of NEMA G11 GFRP Composites based on Grey-Taguchi method”</i> in the international journal Applied Mechanics and Materials - ISSN:660-9336, (doi:10.4028/www.scientific.net/AMM.592-594.18) Vols. 592-594 (2014) pp.18-22, (with Dr. Hari Vasudevan and Naresh Deshpande).</p> <p>6. <i>“Investigation of the Machinability Characteristics of GFRP/ Epoxy Composites using Taguchi Methodology”</i> in the international Journal of Applied Mechanics and Materials (AMM) Vol. 612 (2014) pp 123-129, as a special volume titled “Advanced Research in Design, Manufacturing and Materials” Published by Trans Tech Publications Ltd Switzerland,(doi:10.4028/www.scientific.net/AMM.612.123) (with Dr. Hari Vasudevan and Naresh Deshpande).</p> <p>7. <i>“Experimental Investigation and Optimization of Milling Parameters in the Machining of NEMA G -11 GFRP Composite Material using PCD Tool”</i> presented in the International conference on All India Manufacturing Technology, Design and Research (AIMTDR-2014) held at Indian Institute of Technology Guwahati, Assam, India during December 12-14, 2014.</p> <p>8. <i>“Utility Fuzzy Multiobjective</i></p>
<p>International publications (1-6) &</p>	<p>Prof Ramesh Rajguru</p>	

International Conference (7-11)		<p><i>Optimization of Process Parameters for CNC Turning of GFRP/Epoxy Composites</i>”, presented in the International conference on All India Manufacturing Technology, Design and Research (AIMTDR-2014) held at Indian Institute of Technology Guwahati, Assam, India during December 12-14, 2014.</p> <p>9. <i>“Grey fuzzy optimization of milling parameters for G-11 GFRP/Epoxy composites with multiple performance characteristics”</i> presented in the ICMMM2014 conference held at Indian Institute of Technology Madras, Chennai, during August 8-9, 2014.</p> <p>10. <i>“Utility Fuzzy Multicriteria Optimization of Process Parameters in CNC Turning of GFRP/ Vinyl ester Composites”</i> presented in the ICMMM2014 conference held at Indian Institute of Technology Madras, Chennai, during August 8-9, 2014.</p> <p>11. <i>“Multi Criteria Decision Making using Fuzzy Inference System : A Case in Manufacturing”</i> presented in the ICCICCT 2014 conference held at Noorul Islam centre for higher education Noorul Islam university Kumaracoil, Tamilnadu, India, during July 10-11, 2014.</p>
International publication	Prof. Ranjeet kumar Gupta	<p><i>“Optimization of vehicle suspension system using genetic algorithm”</i> Ranjeet kumar S. Gupta, Vilas Sonawane, Dr. D. S. S. Sudhakar, published in International Journal of Mechanical Engineering & Technology (IJMET), Volume 6, Issue 2, February (2015),</p>

		pp. 47-55, ISSN 0976 – 6340 (Print), ISSN 0976 – 6359 (Online)
International Conference	Prof. Shreya Kadwadkar & Prof. Dharam Rank	<p><i>“Optimization of turning process parameters in the machining of an accumulator (MDN-250) using Taguchi’s design of experiments”</i></p> <p>presented at the international conference on mechanical and production engineering, held at Pune, 8th March, 2015 (with Dr. Hari Vasudevan)</p>

6. CONTRIBUTION OF THE FACULTY

Sr no	Name	Workshop /seminar details
1	Dr K. N. Vijay Kumar	Member of Syllabus Committee for Mechanical Engineering under the University of Mumbai
2	Prof. Prasad Shirodkar	Participated in certificate programme, Outcome based education & accreditation for the faculty members of technical institutes under TEQIP organized by NBA. Delhi, held on 07 th September, 2014 at VJTI, Mumbai
3	Prof. P. Frank Crasta	Organized & Co-ordinated workshop for the subject Production Process-III under Mumbai University held on 4 th August, 2014 at DJSCE, Mumbai
4	Prof. Dharam Ranka	Organized & Co-ordinated workshop for subject Production Process-III under Mumbai University held on 4 th August, 2014 at DJSCE, Mumbai
5	Prof. Saurabh Vichare	<p>1) Organized & Co-ordinated workshop for subject Metrology & Quality Engineering under Mumbai University held on 3rd February, 2015 at DJSCE, Mumbai</p> <p>2) Attended ROBOCON India 2015 held in MIT Pune from 3rd March 2015 to 7th march 2015.</p>
6	Prof. Aditya Jawlekar	Organized & Co-ordinated workshop for subject Metrology & Quality Engineering under Mumbai University held on 3 rd February, 2015 at DJSCE, Mumbai

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