



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
(2016 - 2017)



Editors:

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INDEX

Sr. No.	Content	Page no.
1	Departmental Vision, Mission and PSO's	3
2	About the Department	4
3	Administration	5
4	Student Chapters	8
5	Student Achievements	21
6	Publications and Presentations of the Faculty Members	24
7	Contribution of the Faculty	26

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.

About the Department:

- Department of Mechanical Engineering instituted in the year 2011 with undergraduate (BE) and post graduate (ME) programmes 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.

3. ADMINISTRATION

Dr. K N Vijaya Kumar
Professor & Head

Teaching Staff

Dr. C. M. Choudhari
Professor

Prof. Prasad Shirodkar
Assistant Professor

Prof. Vyankatesh Bagal
Assistant Professor

Prof. Rajnarayan Yadav
Assistant Professor

Prof. P Frank Crasta
Assistant Professor

Prof. Prashant R Patankar
Assistant Professor

Prof. Dhaval Birajdar
Assistant Professor

Prof. Vinit Katira
Assistant Professor

Prof. Rohit Chaurasia
Assistant Professor

Prof. Ramesh R Rajguru
Assistant Professor

Prof. Pavan Rayar
Assistant Professor

Prof. Bronin Cyriac
Assistant Professor

Prof. Greegory Mathew
Assistant Professor

Prof. Dhananjay Shukla
Assistant Professor

Prof. Karthik Ajugia
Assistant Professor

Prof. Shashikant Auti
Assistant Professor

Prof. Ravikant Hattale
Assistant Professor

Prof. Shreya Kadwadkar
Assistant Professor

Prof. Sachin Kamble
Assistant Professor

Prof. Saurabh Vichare
Assistant Professor

Prof. Aditya Jawlekar
Assistant Professor

Prof. Dharam Ranka
Assistant Professor

Visiting Faculty

Prof. S. Satalkar

Prof. Sonal Dhar

Prof. Patwardhan

Non-Teaching Staff

Mrs. Vaishali Joshi

Lab. Assistant

Mr Suresh Mohite

Lab. Attendant

Committees

SAE

Prof. Rajnarayan Yadav

Prof. Ramesh Rajguru

Prof. Shashikant Auti

Prof. Bronin Cyriac

Prof. Dharam V. Ranka

Prof. Vinit Katira

Prof. Saurabh Vichare

Prof. Ravikant Hattale

Prof. Greggory Mathew

ISME

Prof. P Frank Crasta

Prof. Ramesh Rajguru

Prof. Aditya Jawlekar

ISHRAE

Prof. Vyankatesh Bagal

Prof. Dhaval Birajdar

RAS

Prof. Pavan Rayar

Prof. Shashikant Auti

Project Committee

Prof. Vinit Katira

Prof. Prashant Patankar

NBA Committee

Prof. Prashant Patankar-PC

Prof. Rajnarayan Yadav

Time-Table Committee

Prof. Vyankatesh Bagal

Prof. Rohit Chaurasia

Placement Coordinator

Prof. Dhaval Birajdar

Exam Coordinator

Prof. Dhaval Birajdar

Prof. Karthik Ajugia

U. G. Coordinator

Prof. Bronin Cyriac

P. G. Coordinator

Prof. Greggory Mathew

Ph. D Coordinator

Prof. P Frank Crasta

Cultural Committee

Prof. Gregory Mathew

Sports Committee

Prof. Aditya Jawlekar

Alumni Coordinator:

Prof. Dharam V. Ranka

Class Teachers:

SE A Division: Prof. Ravikant Hattale

SE B Division: Prof. Avadhut Samant

TE A Division: Prof. Pavan Rayar

TE B Division: Prof. Aditya Jawlekar

BE A Division: Prof. Dhananjay Shukla

BE B Division: Prof. Saurabh Vichare

F. E. Coordinator

Prof. Prasad Shirodkar

Prof. Ravikant Hattale

4. STUDENT CHAPTERS

Department of Mechanical Engineering organizes various co-curricular activities in-line with its vision of creating competent Mechanical Engineers capable of facing global challenges. The Department motivates students to participate in various national and international competitions and exhibit proficiency. By creating a competitive ambience exclusively suited for their development, the department inspires students to push their limits. This year too, students brought accolades to the department by winning awards in competitions of International and National repute. Under the guidance of the Head of Department Dr. K N Vijaya Kumar and faculty members, the future engineers of DJSCE are set to make a difference to the society.

The various student chapters of SAE, ISME, ISHRAE and RAS regularly organizes Seminars, Workshops and Guest Lectures to motivate students to go beyond the university curriculum and to create awareness about the trending developments in the Mechanical field. Following is a brief description of activities conducted by various Student Chapters.

3.1 Society of Automotive Engineers (SAE)

This student chapter was the very first one started in the Mechanical Department and has gone on to become one of largest student chapter in D. J. Sanghvi College of Engineering in terms of the number of students from Mechanical and Production Engineering inducted in the chapter every year. Organizing committee of SAE has managed to put-up numerous value added programs.

A) Value Added Programs (VAP)

1. Competition on clay modelling of automotive vehicles

Clay Modelling Competition is a comprehensive perspective focused on encouraging students to design an automotive body that would help them understand the real world scenario in the automotive companies.

- A total of 67 students from the mechanical and production department of our college participated forming their respective groups.
- Organized on 4th October, 2016 at room number 42 and 43 from 12 to 3pm. Judges were Professor Jayashree Gadkar, Professor Vinit Katira, Professor Saurabh Vichare, Professor Aditya Jawlekar, Professor Kartik Ajugia
- 1st place : Karan Shah, Tejas Rajebhosale, Maheshwari Panchal, Shivani Singh, Janhvi Shinde
- 2nd place: Geet Dave, Devdat Bhurke, Arun Alva, Vinil Punjani
- 3rd place: Shamir Talkar, Purendru Tiwari, Mithil Upadhyay, Sheetal Kumavat

2. Program conducted on Solid Works from July 2016 to November 2016 in collaboration with CADD centres, Andheri with 22 student participation.
3. SAE organised a forty hour training program on **MATLAB applications in Mechanical Engineering** during February 2017. Dr. Suhas Deshmukh, Director, IoT Mechatronics Pvt Ltd was the trainer for the program. The program included
 - Numerical Integration, ODE fundamentals and its implementation using MATLAB
 - Modelling and Simulation of Mechanical/ Electrical control systems
 - Arduinio Board and Mechatronics
 - Interfacing of Sensors and Actuators to Arduinio Board via MATLAB-Simulink.
4. An **invited talk on Vehicle Dynamics** by Dr. Shaktivel, Associate Professor, VIT University, Vellore by SAE on 28th January 2017.
5. An **invited talk on Jet Propulsion Engines** by Mr. F. A. Shaikh (Assistant general manager in Technical services, Air India) on 4th February 2017.

B) Teams

➤ DJS KRONOS

DJS Kronos is an All-Terrain Vehicle design team that competes under the BAJA off-road vehicle design and race competition organized by the Society of Automotive Engineers (SAE) annually in various locations spread out across the globe.

a) Participated in Enduro Student India (ESI) competition held at Coimbatore from 5th to 9th January 2017.

Achievements

- Ranked 3rd in Mumbai,
- Secured first runner up for sales event and
- Secured second position in Sales Presentation.



b) Participated in BAJA 2017 at Pithampur, Indore, from 12th Feb. to 21st February 2017.

Achievements

- Secured 52nd position among 182 overall,
- Secured 11th position in maneuverability and
- Secured 16th position in cost report.

➤ DJS RACING

DJS Racing is a formula-style racing car design team. They design, develop and test a race car that competes in Formula Student series held in India and around the globe.



a) Team participated in Formula Bharat at Kari Motor Speedway in Coimbatore from January 26th-29th 2017.

Achievements

-Achieved overall rank of 6 out of 58 teams.

-Team DJS Racing was awarded the best designed Formula style Race Car.

b) Team has successfully qualified for Formula Student Germany and Czech Republic 2017, for their formula style race car.

c) Team has successfully qualified for Formula Student Germany, which is to be held at Hockenheim Ring, Germany from August 8th to 13th August 2017. The team has been placed at 10th position worldwide in the registration quiz for Formula Student Germany 2017.



➤ **DJS SKYLARK**

DJS Skylark design, develop and test RC aircraft for SAE Aero Design Competition.



a) Participated in SAE Aero Competition at Texas, USA from 10th March to 12th March 2017.

Achievements

- Secured fourth position overall,
- Secured first position in design report,
- Secured fourth position in flight round and
- Secured 12th position in technical oral presentation.



➤ **DJS KARTING INDIA**

DJS Karting INDIA design and fabricate a go-kart.

Team was involved with three competitions:

- (i) National Kart Racing Challenge (NKRC) in Oct 2016
- (ii) Go Kart Design Challenge (GKDC) in January 2017
- (iii) Indian Karting Championship (IKC) in January 2017.



a) Participated in National Kart Racing Championship held at Kolhapur district of Maharashtra from 29th September to 2nd October, 2016.

Achievements

-Team cleared Technical Inspection round and during acceleration & brake test the one of the component gear box (OEM part) broke down. A wealth of experience was gained during the event.

b) Participated in Go Kart Design Challenge at Coimbatore from 14th – 19th January, 2017.

Achievements

- Secured the 5th rank overall,
- 1st place in skid pad,
- 2nd place in auto cross,
- 2nd place design and
- 2nd place business plan



c) Participated in Indian Karting Championship at Pune from 26th – 29th January 2017.

Achievements

-Secured the 5th rank overall

-Achieved best CAE in the IKC 2017 for their go kart



➤ DJS HELIOS

DJS Helios team design, fabricate and test a single seated solar powered car.



- a) Participated in Electric Solar Vehicle Championship (ISIE-ESVC2016-17) scheduled from 28th March to 2nd April 2017 at Bhimavaram, Andhra Pradesh which is Asia's biggest solar vehicle design and manufacturing event.

Achievements

- Secured 22nd position overall among 86 teams from all over India,
- Secured 11th position in business plan event,
- Secured 15th position in cross pad and
- Secured 18th position in Innovation.



➤ **DJS THUNDERBOLT**

DJS Thunderbolt team design, fabricate and test an electric powered racing car. The car is currently in design phase and is expected to be ready by April 2018. Team has been placed at 8th position worldwide in the registration quiz for Formula Student Electric 2017, Hockenheim, Germany.

➤ **DJS PHOENIX**

DJS Phoenix team design, fabricate and test a quad-rotor helicopter. Team participated in IRL quad challenge in Indira Gandhi Indoor Stadium Delhi from 27th April, 2017 to 30th April 2017.

➤ **DJS TACHYON**

DJS Tachyon conceive, design and fabricate a three wheel configuration vehicle powered by human-electric hybrid power and capable of seating two passengers catering to the day to day mobility needs. They will be participating in Effi-Cycle 2017 at Lovely Professional University, Phagwara, Punjab in October 2017.

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.

A) Value Added Program

a) The students of the mechanical and production engineering department were taken on a two day workshop to L&T Corporate Technology & Engineering Academy, Madh on 22-23rd October 2016, organized by the ISME student chapter. The students were divided into 4 batches of 30 students in each batch. The training of the students commenced according to the predetermined schedule. The four modules taught to students were:

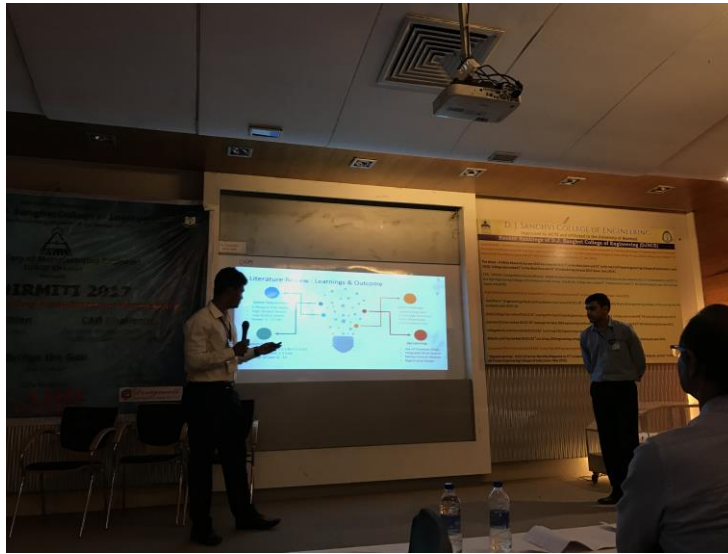
- Fabrication and Welding
- Industrial Safety
- Machining Operations
- Press Tool

Certificates were awarded to students after completion of this workshop. 103 Third year Mechanical Engineering students and 19 Production Engineering students attended this program.

b) One day workshop on “3D Printing” was conducted on behalf of ISME student chapter by M/s Imaginarium, Mumbai on 11th February 2017. The workshop was an interactive session between M/s Imaginarium professionals and the undergraduate students from Mechanical and Production Engineering Departments. It was a total hands on experience on design and printing in 3D Printing, which is an important tool in Rapid Prototyping Technology.



c) An inter-collegiate project competition “DJ Nirmiti- Igniting Manufacturing Renaissance” was organized on 21st - 22nd March 2017 by ISME student chapter, wherein undergraduate students have showcased their project work and other technical skills.



B) Industrial Visit

Second year students visited M/s. Kela Industries, Nasik in the month of September, 2016 to have a practical knowledge on various manufacturing processes/operations.

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.

A) Value Added Program

a) An invited talk was organized by ISHRAE on ‘Refrigeration & Air-conditioning’ by Prof. Avinash G. Shaligram on 4th March 2017.

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

R.A.S is an inter departmental society under the 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 D J Sanghvi, the organizing committee planned to conduct numerous events which include competitions, industrial visits, guest lectures, workshops and value added programs.

A) Value Added Program

a) A three day work shop was conducted on behalf of RAS student chapter on the topic PLC Scada (industrial automation) on 13th, 14th and 20th of Aug 2016 by Prolific Pvt. ltd. which was a grand success.

b) A Two days Hands on Training on behalf of RAS student chapter was conducted for the batch of 30 students on Altium Designer Tool by Mr. Shreyas on 4th and 5th Jan 2017.

c) An invited talk was organized for TE Mechanical students by Team RAS on Industrial Mechatronics by V. A. Kaushik, Consultatnt from FESTO on 13th February, 2017.

d) Participated in “ROBOCON 2016” held in Pune organized by Asia Pacific Broadcasting Union (ABU).

5. STUDENT ACHIEVEMENTS

A) RESULT DETAILS (2016-17)

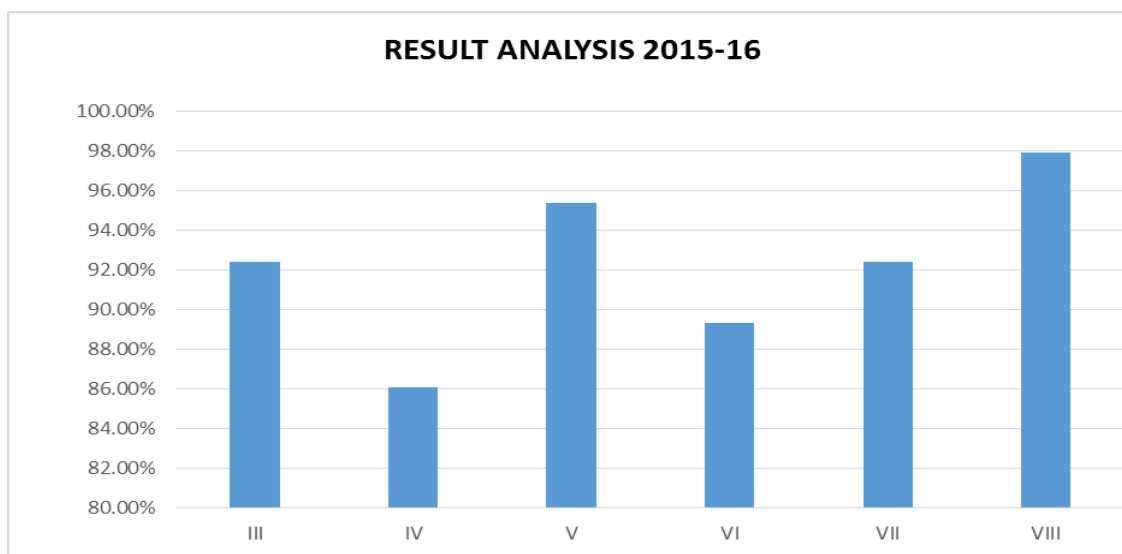
S.E. Mechanical Engineering Sem - III December 2016		
No. of Students Appeared		151
No. of Students Passed		132
No. of Students with AT/KT		19
Grades obtained :-		
1	O (9-10)	23
2	A (8-9)	38
3	B (7-8)	53
4	C (6-7)	16
5	D (5-6)	02
6	E (4-5)	00
All Clear Passing Percentage :-		87.41%
Top Rankers:-		
Anuj Petkar	10	
Milan Kaklotar	9.67	
Anirudh Kambre	9.67	
Varun Shetty	9.67	
Karan Sawant	9.67	

T.E. Mechanical Engineering Sem -V December 2016		
No. of Students Appeared		144
No. of Students Passed		137
No. of Students with AT/KT		07
Grades obtained :-		
1	O (9-10)	13
2	A (8-9)	41
3	B (7-8)	53
4	C (6-7)	28
5	D (5-6)	02
6	E (4-5)	00
All Clear Passing Percentage :-		95.14%
Top Rankers:-		
Devdatt Bhurke	10	
Benjamin Samuel	10	
Amit Choudhari	9.7	

B.E. Mechanical Engineering Sem -VII December 2016		
No. of Students Appeared	150	
No. of Students Passed	146	
No. of Students with AT/KT	04	
Grades obtained :-		
1	O (9-10)	05
2	A (8-9)	54
3	B (7-8)	68
4	C (6-7)	17
5	D (5-6)	02
6	E (4-5)	00
All Clear Passing Percentage :-		97.33%
Top Rankers:-		
Sanjay Kumar	9.41	
Hanish Parekh	9.2	
Siddharth Bhatt	9.19	

B) RESULT ANALYSIS (2015-16)

SR NO.	CLASS	SEM	MONTH	YEAR	PASSING PERCENTAGE
1	S.E	III	DECEMBER	2015	92.41%
		IV	MAY	2016	86.09%
2	T.E	V	DECEMBER	2015	95.36%
		VI	MAY	2016	89.33%
3	B.E	VII	DECEMBER	2015	92.41%
		VIII	MAY	2016	97.93%



Extra-Curricular Activities

N.S.S.

- Prof. Vyankatesh Bagal, NSS Officer, attended 110th orientation programme for NSS program officers at ETI, BPHE'S Ahmednagar college, from 13th Nov., 2016 to 19th Nov., 2016.

- ✓ 12 students from the department visited to orphanage.
- ✓ 6 students from the department worked for fund raising.
- ✓ 13 students from the department participated in Newspaper collection Drive.
- ✓ 13 students from the department participated in Tree Plantation Drive.
- ✓ 3 students from the department worked for Swachh Bharat Abhiyaan.
- ✓ 3 students from the department participated in Annual NSS camp.
- ✓ 4 students from the department worked for Election rally.
- ✓ 3 students from the department worked for Polio awareness rally.

6. PUBLICATIONS AND PRESENTATIONS OF THE FACULTY MEMBERS

Name of the faculty	Details
Dr. K N. Vijay Kumar	<p>1) “Novel Method Of Noise Elimination Of Digital Signals”, Third International Conference on Recent Advances and Challenges in Engineering & Management, VIT, December 22-23, 2016.</p> <p>2) “Design, Analysis, Implementation Of A Force Base Sensor For Aerospace Engineering”, Third International Conference on Recent Advances and Challenges in Engineering & Management, VIT, December 22-23, 2016.</p> <p>3) “Microcontroller Based Control Of Devices Using A Sophisticated Control System”, Third International Conference on Recent Advances and Challenges in Engineering & Management, VIT, December 22-23, 2016.</p> <p>4) “Design & Development Of Backward Kinematic Algorithm For Planar Mechanisms”, 2nd Biennial International Conference on Nascent Technologies in Engineering, an IEEE Technically Co-Sponsored Conference, Vashi, 27 Jan - 28 Jan 2017.</p>
P Frank Crasta	<p>1) “Improving Quality Parameters of Steel Balls Affecting Noise in Ball Bearing”, International Research Journal of Engineering and Technology (IRJET) ISSN : 2395-0056, Volume 3, Issue 6, June 2016.</p> <p>2) “Study of Vibration Generated in Steel Balls Creating Noise in Ball Bearings”, International Research Journal of Engineering and Technology (IRJET) ISSN : 2395-0056, Volume 3, Issue 6, June 2016.</p> <p>3) “Enhancing Ink Mileage”, International Journal of Research in Engineering and Applied Science (IJREAS) ISSN : 2249-3905, Volume 6, Issue 6, June 2016,.</p> <p>4) “Utility of Six Sigma Application”, International Research Journal of Engineering and Technology (IRJET) ISSN : 2395-0056, Volume 3, Issue 8, June 2016.</p>
Ramesh Rajguru	<p>1) “Optimization Of Multi-Performance Characteristics in the Turning Of GFRP(E) Composites using Principle Component Analysis combined with Grey Relational Analysis” accepted for publication in Elsevier Materials today Proceedings and presented in ICMPC (International Conference on Material Processing and Characterization) held during 17th to 19th March 2017 at Gokaraju Rangaraju Institute of Engineering and Technology, Hyderabad (With Dr. Hari Vasudevan, and Kalpesh).</p> <p>2) “Optimization Of Material Removal Rate And Cutting Forces In Turning Of GFRP Composites” 6th International & 27th All</p>

	<p>India Manufacturing Technology, Design and Research Conference (AIMTDR-2016), December 16-18, 2016 at College of Engineering., Pune, Maharashtra, INDIA.</p> <p>3) “Optimization Of Cutting Parameters For Surface Roughness In Machining Of GFRP Composites Using Grey Fuzzy Method” 6th International & 27th All India Manufacturing Technology, Design and Research Conference (AIMTDR-2016), December 16-18, 2016 at College of Engineering., Pune, and Maharashtra, INDIA.</p> <p>4) “Grey Fuzzy Multiple Criteria Optimization Of Process Parameters For CNC Turning Of GFRP/Vinyl Ester Composites” accepted for oral presentation at iCMMD 2016 December 20-21, 2016 at BATUE Lonere, Maharashtra, INDIA.</p> <p>5) “Multiple Criteria Optimization of Process Parameters for Edge Milling of NEMA G11 Composites using Desirability Function Analysis” accepted for oral presentation at iCMMD 2016 December 20-21, 2016 at BATUE Lonere, Maharashtra, INDIA.</p>
Dharam Ranka	<p>“Suspecting Dominant Variable That Causes Porosity Defect In A Cast Made Up Of Aluminium Alloy (Lm2) Using Shainin’s DOE Approach”, International Journal of Advances in Mechanical and Civil Engineering (IJAMCE), ISSN: 2394-2827, Volume-3, Issue-5, Oct.-2016. (with Dr. Hari Vasudevan and Prof. Rajendra Khavekar)</p>

7. CONTRIBUTION FROM FACULTY MEMBERS

Sr. No.	Name	Workshop /seminar/FDP/STTP/guest lecture details
1	Vyankatesh Bagal	Attended 110 th orientation programme for NSS program officers at ETI, BPHE'S Ahmednagar college, Ahmednagar from 13 th Nov to 19 th Nov 2016.
2	Ramesh Rajguru	Conducted lecture on "Components of Composites and Manufacturing" in Plastics Engineering Department at Shri Bhagubhai Mafatlal Polytechnic, Mumbai 400 056.
3	Ramesh Rajguru	Reviewed a paper on "Multiple performance optimisation of process parameters in drilling of GFRP composite laminate using core drill" in 06/10/ 2016; Publisher: National Institute of Science Communication and Information Resources Dr K S Krishnan Marg, New Delhi 110 012, INDIA
4	Dr. K. N. Vijaya Kumar	Chaired a session in International Conference & Workshop on Advance Mechanical Engineering on 25th February 2017 held at Thakur College of Engineering & Technology, Mumbai
5	Prof. P.R. Patankar & Prof. V.U. Bagal	Were invited as judges for project presentation competition conducted in Thakur College of Engineering & Technology, Mumbai as part of International Conference & Workshop on Advance Mechanical Engineering on 24th February 2017.