

ANNUAL REPORT

(2018 - 2019)



Department of Mechanical Engineering
Dr. Babasaheb Ambedkar Technological University
Lonere - 402 103, Dist- Raigad, Maharashtra (India)

CONTENTS

Sr. No.	Title	Page No.
1	Message from the Head of Department	3
2	Vision and Mission Statement for Department	4
3	About Department	4
4	Program Educational Objectives(PEOs) & Program Outcomes(POs)	4
5	Overview of Academic Programs	5
	5.1 UG Students Statistical Information	5
	5.2 Result Analysis	5
	5.3 Campus Placements	6
6	Faculty and Staff	7
7	Additional Responsibilities to the Faculty	9
8	Advisory Board and Board of Studies(BoS)	10
9	Faculty and Research Publications	11
	9.1 International Conference Publication	11
	9.2 International Journal	11
	9.3 National Journals and Conferences	12
10	Department Annual Budget	13
11	Laboratory	13
	11.1 Major Instruments in Laboratory	13
	11.2 Laboratory Expenditure	16
12	Projects	18
	12.1 List of Undergraduate Projects (2018-19)	18
	12.2 List of TPCS Projects (2018-19)	19
	12.3 List of Post Graduate Projects (2018-19)	20
	12.4 List of PhD Candidates (2018-19)	21
13	Industry Institute Interaction	22
	13.1 Industry Interaction by Students	22
	13.1 Industry Interaction by Faculty	23
	13.3 Industry/Exhibition visits by Faculty,UG,PG students and Research Candidates	23
14	Workshops attended by Faculty Members, Research Scholars and PG Students	24
	14.1 Workshops attended by Faculty Members	24
	14.2 Expert Lecture by Faculty Members	25
15	Academic Achievements	25
	15.1 Faculty Achievements	25
	15.2 Distinguished Alumni of Department	26
	15.3 Students Achievements	27
	15.3.1 ISHRAE Chapter	27

	15.3.2 NPTEL Local Chapter	27
	15.3.3 GATE Scores (GATE 2019)	27
16	Departmental Activities by Faculty, Students and Associations	28
	16.1 Industrial and Exhibition Visits	28
	16.2 ISHRAE Chapter 2018-19	29
	16.3 MESA(Mechanical Engineering Students Association), TNPC(Members of Mechanical Engineering) and SAE(Society of Automobile Engineers)	31
17	Five-Year Development Plan (2016-2021)	32
18	Departmental Strengths, Weaknesses, Opportunities and Challenges	32



Dr. Mudigonda Sadaiah
Professor and Head of Department,
Mechanical Engineering

1. MESSAGE FROM THE HEAD OF THE DEPARTMENT

"The future belongs to those who prepare for it today."

It gives me immense pleasure to present the annual report of the Department of Mechanical Engineering for the year 2018-19. It is a matter of great pride that the Department has made consistent progress, year on year, in academic and co-curricular activities. The level of education offered by this Department is up-to-date and appropriate to the needs of the industry and profession.

Overall development of the individual is the goal of education and we all have to ensure that there is no stone left unturned to equip the student of today for the challenges of life. The Department, through state-of-the-art laboratories and conducive environment, facilitates learning and development of students. We provide our students opportunities to engage in experiments, design work, project work, industrial training, professional society activities and team work to enhance the learning process. Each of our faculty members is engaged in meaningful research and innovation by involving not only Ph.D. /M. Tech students but also B. Tech students.

Our mission is to prepare our students to apply basic and advanced engineering knowledge and skills to the design, analysis and research of engineering systems; to prepare them to compete successfully in today's job market and for lifelong learning. In addition to good teachers, we also provide our students with an innovative and engaging curriculum. The holistic approach of the department stimulates innovation among students by inspiring fresh ideas with different perceptiveness, creative thinking and strong conviction to achieve true success. I take this opportunity to thank teaching as well as non-teaching staff and students, who are rendering their wholehearted support and co-operation to make the department a centre of excellence. I extend my best wishes to all the students in their chosen career path.

Dr. Mudigonda Sadaiah
Head, Department of Mechanical Engineering

2. VISION AND MISSION STATEMENTS OF THE DEPARTMENT

Vision:

The vision of the department is to achieve excellence in teaching, learning, research and transfer of technology and overall development of students

Mission:

Imparting quality education, looking after holistic development of students and conducting need based research and extension.

3. ABOUT THE DEPARTMENT

Established in the year 1992, the Department of Mechanical Engineering offers various academic programs, like B. Tech. (Mechanical Engineering), M. Tech. (Manufacturing Engineering), M. Tech. (Thermal & Fluids Engineering) and Ph.D. The department takes pride in its highly qualified and motivated faculty members most of whom are PhDs from IITs. The alumni of the Department have made a mark in industry and profession. Over the years, the department has maintained good academic and research culture. As a result, the faculty members in the department have published more than 600 papers in peer-reviewed international journals and conferences so far. Further, some of the laboratories have developed innovative products which are being patented for commercial usage. The Department has strong linkages with institutes like IIT Bombay and BARC. In addition, the Department has also conducted several continuing education programs (CEPs) and STTPs for the benefit of faculty and industry personnel.

4. PROGRAM EDUCATIONAL OBJECTIVES (PEOs) & PROGRAM OUTCOMES (POs)

Program Educational Objectives (PEOs)

PEO1	Graduates should excel in engineering positions in industry and other organizations that emphasize design and implementation of engineering systems and devices.
PEO2	Graduates should excel in best post-graduate engineering institutes, reaching advanced degrees in engineering and related discipline.
PEO3	Within several years from graduation, alumni should have established a successful career in an engineering-related multidisciplinary field, leading or participating effectively in interdisciplinary engineering projects, as well as continuously adapting to changing technologies.
PEO4	Graduates are expected to continue personal development through professional study and self-learning.
PEO5	Graduates are expected to be good citizens and cultured human beings, with full appreciation of the importance of professional, ethical and societal responsibilities.

Program Outcomes (POs)

PO1	Apply knowledge of mathematics, science and engineering to analyze, design and evaluate mechanical components and systems using state -of-the-art IT tools.
PO2	Analyze problems of mechanical engineering including thermal, manufacturing and industrial systems to formulate design requirements.
PO3	Design, implement, and evaluate mechanical systems and processes considering public health, safety, cultural, societal and environmental issues.
PO4	Design and conduct experiments using domain knowledge and analyze data to arrive at valid conclusions.

PO5	Apply current techniques, skills, knowledge and computer based methods & tools to develop mechanical systems.
PO6	Analyze the local and global impact of modern technologies on individual organizations, society and culture.
PO7	Apply knowledge of contemporary issues to investigate and solve problems with a concern for sustainability and eco-friendly environment.
PO8	Exhibit responsibility in professional, ethical, legal, security and social issues.
PO9	Function effectively in teams, in diverse and multidisciplinary areas to accomplish common goals.
PO10	Communicate effectively in diverse groups and exhibit leadership qualities.
PO11	Apply management principles to manage projects in multidisciplinary environment.
PO12	Pursue life-long learning as a means to enhance knowledge and skills.

5. OVERVIEW OF ACADEMIC PROGRAMS

Academic Program		Duration	Intake
B. Tech	Mechanical Engineering	Four Years	60
M. Tech	Manufacturing Engineering	Two Years	18
M. Tech	Thermal Engineering	Two Years	18
Ph. D.	Mechanical Engineering	NA	27

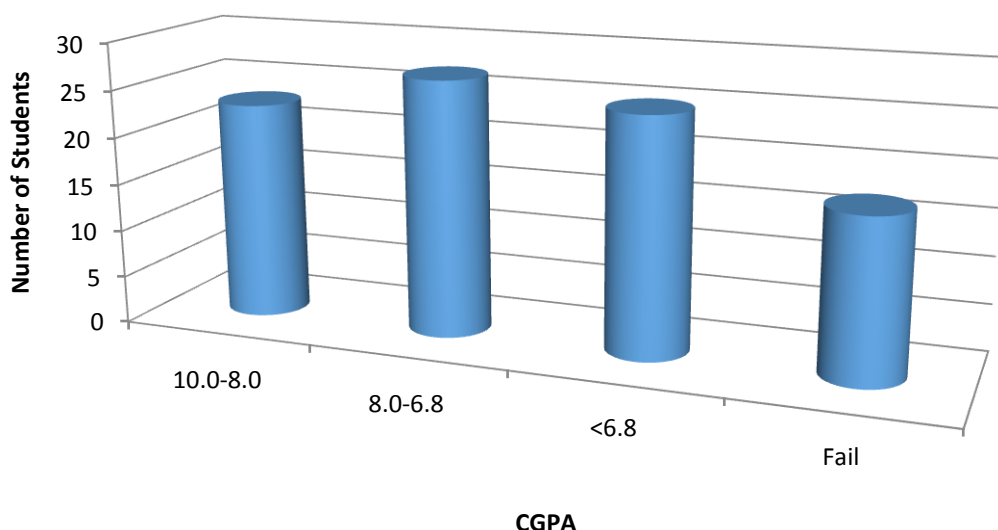
5.1 UG Students Statistical Information

Year	Category Wise Distribution								Total		
	Open	OBC	VJNT	SC	ST	SBC	J&K	TFWS	M	F	T
First	19	25	7	8	3	1	0	0	53	10	63
Second	20	26	11	11	4	1	1	0	58	16	74
Third	22	24	10	8	1	1	0	2	51	17	68
Four	30	25	12	11	3	4	3	2	71	19	90

5.2 Result Analysis

B. Tech Pass Out Students' Data (CGPA)	
Pointer	No. of Students
8.0-10.0	23
6.8-8	27
<6.8	25
Fail	17
Total	92

Result Analysis for Final Year BTech 2018-19



5.3 Campus Placements

Following students from the department have got campus placement during academic year 2018-19 from Training and Placement Cell, DBATU.

Sr. No.	Name of Student	Name of the Company	CTC offered
1	Suraj Chinchankar	Rajasthan Transformers	Rs. 1,80,000 per annum
2	Mihir Bhide	Sequent Scientifics	Rs. 2,50,000 per annum
3	Dheeraj Shukla	Laxmi Organic, Mahad	Rs. 2,50,000 per annum

Following students from the department have got campus placement during academic year 2018-19 from ISHRAE, DBATU Chapter.

Sr. No.	Name of Student	Name of the Company
1	Sameer Ghanvat	Cruise Appliances Pvt. Ltd
2	Saurav Sankhe	Bluestar
3	Samiksha Sawant	Bluestar
4	Ankita Taralkar	Kirloskar
5	Minal Kalokhe	Ductofab Sys. Pvt. Ltd
6	Nishad Ghode	Airpro Engineers Pvt. Ltd
7	MilindUkey	Bailiwick India

6. FACULTY AND STAFF



Dr. Mudigonda Sadaiah

Post: Professor and Head of Department

Education: B. Tech (Mechanical Engg.)

M.E. (Production Engg.)

Ph.D. (Manufacturing Engg.)



Dr. M. S. Tandale

Post: Professor

Education: B.E.
(Mechanical Engg.)

M.Tech. (Mechanical
Engg.)

Ph.D. (Mechanical Engg.)



Dr. V.G. Sargade

Post: Professor

Education: B. Tech.
(Mechanical Engg.)

M. Tech. (Mechanical
Engg.)

Ph. D. (Mechanical Engg.)



Dr. R. P. Kate

Post: Associate Professor

Education: B. E.
(Mechanical Engg.)

M. Tech. (Energy Systems
Engg.)

Ph.D. (Mechanical Engg.)



Dr. N. Agrawal

Post: Associate Professor

Education: B. E.
(Mechanical Engg.)

M. Tech. (Ref. & AC,
Mechanical Engg.)

Ph.D. (Mechanical Engg.)



Dr. R. S. Pawade

Post: Associate Professor

Education: B. E.
(Mechanical Engg.)

M. E. (Machine Tool
Engg.)

Ph.D. (Mechanical Engg.)



Dr. H. N. Warhatkar

Post: Associate Professor

Education: B. E.
(Mechanical Engg.)

M. Tech. (Mechanical
Engg.)

Ph. D. (Mechanical Engg.)



Dr. B. F. Jogi

Post: Associate Professor

Education: B.E.
(Mechanical Engg.)

M. Tech. (Manufacturing
Technology)

Ph.D. (Nano Materials)







Dr. H. S. Joshi

Post: Assistant Professor





Education: B.E.
Production Engg.

M.E. Mechanical-
CAD/CAM

Ph.D. Mechanical Engg.

	<p>Dr. G. S. Warkhade Post: Assistant Professor Education: B.Tech. (Mechanical Engg.) M.Tech. (Thermal and Fluids Engg.) Ph. D. (Mechanical Engg.)</p>		<p>Dr. D. B. Waghmare Post: Assistant Professor Education: B. E. (Mechanical Engg.) M. E. (Mechanical - Production Engg.) Ph. D. (Mechanical Engg.)</p>
	<p>Prof. S. R. Dhale Post: Assistant Professor Education: B. E. (Mechanical Engg.) M. E. (Design Engg.) Ph.D. Ongoing (Manufacturing Engg.)</p>		<p>Prof. A. J. Chapekar Post: Adjunct Faculty Education: B. E. (Mechanical Engg.) M. Tech (Thermal Engg.) MBA (Marketing)</p>

Ad-hoc Faculty

	<p>Mr. Ajay Chavan Post: Assistant Professor Education: M. Tech (Manufacturing Engg.)</p>		<p>Mr. Shrikant Thorat Post: Assistant Professor Education: M. Tech (Manufacturing Engg.)</p>
	<p>Mr. Bhushan Nikam Post: Assistant Professor Education: M. Tech (Manufacturing Engg.)</p>		<p>Mr. P D Agwane Post: Assistant Professor Education: M. Tech (Manufacturing Engg.)</p>

Technical Supporting Staff

	<p style="text-align: center;">Mr. R. M. Chavan</p> <p>Post: Lab Assistant</p> <p>Education: C.E.A.(BTE. Mumbai), B.A (Mumbai University)</p> <p>Experience in dept: 1.5 years</p>		<p style="text-align: center;">Mr. A. Patil</p> <p>Post: Lab Assistant</p> <p>Education: Diploma in Mechanical Engineering</p> <p>Experience in dept: 1.5 years</p>
		<p style="text-align: center;">Mrs. Manisha Umesh Sakate</p> <p>Post: Lab Assistant</p> <p>Education: B.Sc. in Microbiology</p> <p>Experience in dept: 2.5 years</p>	

7. ADDITIONAL RESPONSIBILITIES TO THE FACULTY

Dr. M. Sadaiah

- Head, Mechanical Engineering Department
- Chairman, BoS of Mechanical Engineering
- Associate Coordinator TEQIP-3
- Member Secretary, Post-Graduation Executive Council (PGEC)
- Member of IQAC cell of Dr. Babasaheb Ambedkar Technological University, Lonere

Dr. M.S. Tandale

- CR Processing Officer of University
- Departmental Coordinator, Projects
- Lab In-charge, IC Engines Lab

Dr. V.G. Sargade

- Dean, Students' Welfare
- Chairman, Standing Administrative Committee
- Coordinator, B. C. Cell of Affiliation
- Member of BoS
- Lab In-charge, Materials Science and Metallurgy Lab

Dr. N. Agarwal

- Training and Placement Officer
- Faculty Advisor ISHRAE

Dr. R. S. Pawade

- Nodal Officer, TEQIP 3 Procurement Cell
- Coordinator, UGC Cell and Manufacturing Engineering
- Workshop Superintendent
- In-charge, Seating Arrangement University Examinations

Dr. H. N. Warhatkar

- NSS Coordinator

Dr. B. F. Jogi

- Warden, Sahyagiri Hostel

Dr. H.S. Joshi

- Coordinator, Technical Event Committee
- Chairman, University Alumni Cell

Dr. G. S. Warkhade

- Sports Coordinator
- Time-table coordinator

Dr. D. B. Waghmare

- Warden, Sahyagiri Hostel
- Departmental Coordinator: IQAC, Annual Report
- Subject Chairman for B. Tech (EG) and M. Tech (AJT and PCT)
- Lab In-Charge: Engineering Graphics Lab

Prof. S. R. Dhale

- Departmental Coordinator: Alumni Activities
- Lab In-Charge: Metrology and Quality Control Lab

Prof. A J Chapekar

- BoS member for M. Tech.

8. ADVISORY BOARD AND BOARD OF STUDIES (BoS)

Advisory Board:

1. Prof. N.V. Sahasrabudhe
2. Dr. S. M. Mane
3. Prof. Vijay Nyayadhis
4. Shri A. B. Joshi
5. Shri. Bhupesh Mall

Board of Studies:

1. Dr. M. Sadaiah, Chairman
2. Mr. Anand Chapekar, Member
3. Dr. M. S. Tandale, Member
4. Dr. V. G. Sargade, Member
5. Dr. V.K. Suri

6. Dr. M.S. Kale
7. Shri R.P. Javale, Member, RCF, Thal Alibaugh.

9. FACULTY RESEARCH AND PUBLICATIONS

9.1 International Conference Publications

1. Snehal Warake, Dnyaneshwari Barde, Khushboo Chaudhari, Utkarsha Jawale, Sachin Sonage, **Madhukar Tandale**, “Optimization of Extractor of Kusun seed oil through Soxhlet Extraction process using N-Hexane Solvent”, 2nd International Conference on Advanced Technologies for Societal Applications, SVERI’s College of Engineering, Pandharpur, Maharashtra., December 2018.
2. **Dhanraj B. Waghmare**, Partha Saha, “Comparison of Single- and Multiple-Spot Resistance Welding of Sub-millimeter Thick SS304 and SS316 Sheets”, Lecture Notes on Multidisciplinary Industrial Engineering, M. S. Shunmugam, and M. Kanthababu (Eds): Advances in Additive Manufacturing and Joining, 978-981-32-9432-5.
3. **Susheel R Dhale**, B.B Deshmukh, “Investigations into the effect of varying electrode diameter on cutting rate and kerf width in WEDM of varying thickness Inconel718”, 7th International & 28th All India Manufacturing Technology, Design and Research (AIMTDR)Conference, Anna University, 13-15 December 2018.
4. **Raju S. Pawade**, Pankaj Mohire, “Experimental Evaluation of Surface Roughness, Dimensional Accuracy and MRR in Cylindrical Grinding of EN 24 Steel”, 7th International & 28th All India Manufacturing Technology, Design and Research(AIMTDR) Conference 2018, Dec 2018, College of Engineering Guindy, Anna University, Chennai, India.

9.2 International Journals

1. Shrikant Thorat and **Mudigonda Sadaiah**, The effect of residual stresses, grain size, grain orientation, and hardness on the surface quality of Co-Cr L605 alloy in Photochemical Machining, Journal of Alloys and Compounds 804(2019) 84-92, <https://doi.org/10.1016/j.jallcom.2019.06.358>, Elsevier, Impact Factor: 4.175
2. Shrikant Thorat and **Mudigonda Sadaiah**, Investigation on Surface Integrity of Co-Cr L605 Alloy in Photochemical Machining, Journal of Manufacturing Processes 38 (2019) pp. 483-493, <https://doi.org/10.1016/j.jmapro.2019.01.006>, Elsevier, Impact Factor: 3.462
3. Vishwanath Chavan, Shirish Kadam, and **Mudigonda Sadaiah(2018)**,Performance of Alumina-based Ceramic Inserts in High Speed Machining of Nimonic 80A, Journal of Materials and Manufacturing Processes, <https://doi.org/10.1080/10426914.2018.1532084>, Taylor and Francis, Impact Factor : 2.669
4. Gaurav D. Sonawane, **Vikas G. Sargade**,“Studies on the Characterization and Machinability of Duplex Stainless Steel 2205 during Dry Turning”, World Academy of Science, Engineering andTechnology International Journal of Mechanical and Industrial Engineering; Vol: 13, No: 5, 2019.
5. Suresh Nipani, **Vikas Sargade**, Ramesh Guttedar,“Optimization of Process parameters through GRA”, TOPSIS, and RSA models; International Journal of Industrial EngineeringComputations, Vol. 9 (2018).

6. A. Burondkar, S. Shinde and **R. Kate**, “Socio-economic Studies with reference to Chulla(Biomass Cooking Stoves) in the villages of Raigad district in Maharashtra, India”, Environmental, Development and Sustainability, Lambert Academic Publishing, 2019, ISBN 978-613-9-45834-9.
7. V. C. Todkari and **R.P. Kate**, “Numerical and Experimental Investigations on a circular hydraulic jump due to normal impinging free liquid jet on a flat horizontal target plate”, Fluid Dynamic Research, 51(2), 025508, 2019.
8. Juned R Kazi, **Neeraj Agrawal**, “Experimental Investigation of Dehumidifier Hybrid Airconditioner Integrated Zeotropic Refrigerant Blend R-407C Air Source Water Heat Pump”, REC 2019, IITRAM Ahemdabad, Springer proceeding.

9.3 National Journals and Conferences

1. **Dhanraj B. Waghmare**, Utkarsh A. Palatkar, Mrunal S. Alatar, Ashish P. Gavit, Sagar S. Paithane, Yash C. Sawant, “Automation of PTFE Handling System for Mould Filling Operation”, Proceedings of National Conference on Trends and Advances in Mechanical Engineering (TAME-2019) February 15-16, 2019.
2. Sagar Ajanalkar, **Harshdeep Joshi**, “Robot based Automated Storage and Retrival System”, National Conference on Emerging Trends in Mechanical Engineering(NCETME-2019) at Department of Mechanical Engineering, Vishwakarma Institute of Technology, Pune India during Feb 2019.
3. Dildar Phunde, **Harshdeep Joshi**, “Study of formability of G.I sheet during Single Point Incremental Forming Process”, National conference on Emerging Trends in Mechanical Engineering(NCETME-2019) at Department of Mechanical Engineering, Vishwakarma Institute of Technology, Pune India during Feb 2019.
4. BhushanNikam, Simantak Wankhede, **Raju Pawade**, “Effect of Tool Shape and Powder Type on PMEDM Performance of D2 Steel”, National Conference on recent Trends in Mechanical Engineering(NCRTME2018), WCE, Sangli, India, June 2018.
5. Prathamesh Gund, **Neeraj Agrawal**, “Food supply Chain management: Need of the Hour”, Conference on Technologies for future cities, Mahatma Education Society’s Transactions and Journals’ Conference Proceedings ISBN 978-93-82626-27-5, Dec 2019.
6. Rohit V. Zende, **Raju S. Pawade**, Nikhil D. Pandharpate, “Cloud Based Inspection: Technology for Industry 4.0”, Journal of Association of Engineers, India, ISSN 0368-1106, Vol 89., Kalyani College of Engineering, Jan 19.

10. DEPARTMENT ANNUAL BUDGET

Sr. No.	Details	Amount
P. 1.1	Salaries and Wages Teaching	24,900,000
P. 1.2	Salaries and Wages Non-Teaching	1,722,000
P. 1.3	Ad-hoc Salary Teaching	385,000
P. 1.4	Ad-hoc Salary Non-Teaching	265,000
P. 1.5	Daily Wages Salary	130,000
P. 1.6	Machinery & Equipment UG	90,000
P. 1.7	Machinery & Equipment PG	416,000
P. 1.10	Laboratory Expenditure(recurring)	580,000
P. 1.11	TA/DA	100,000
P. 1.12	Medical/LTC	120,000
P. 1.14	Conferences & Seminars	72,000
P. 1.15	Office Expenses	10,000
P. 1.16	Departmental Students' Activities	25,000

11. LABORATORIES

11.1 Major Instruments in Laboratories

Sr. No.	Name of Instrument	Qty.	Total Cost
1	CNC TRAINER LATHE with Supporting Software, Training Manuals	01	4,79,476.69/-
2	CNC MILL TRAINER MT- 200 with Supporting Software & Training Manuals	01	4,62,272.36/-
3	A.C. 1.5 Tonnes Videocon,	03	77,000/-
4	CAD / CAM Table, Size: H 30" X L 96" X W 24", 6 Drawer with Lock	10	92,936/-
5	Computer system	06	1,92,000/-
6	HP Compaq system	05	1,75,000/-
7	Liebet made Online UPS	01	77,480/-
8	HP Compaq Presario Computer System SR1530	05	1,92,500/-
9	HP Compaq Presario Computer System SR1530	05	1,92,500/-

10	Desktop HP DX 7200 Processor Computer System	15	6,52,500/-
11	Desktop HP DX 7200 Processor Computer System	05	217500/-
12	Desktop HP DX 7200 Processor Computer System	10	4,18,270/-
13	Computer Application Software (Autodesk Inventor Professional 2008 Education Network Copy) (Sr. No. 346-8911-0604, 0998, 1255,1592,1889,2186,2483,0703,1790,1493,1097,1394,1691,1988, 2285,2582,0802,1196,2087,2384)	20	6,34,400/-
14	Computer Application Software (Autodesk Inventor Professional 2008 Education)	20	90,000/-
15	Online UPS System of KVA Capacity	01	2,27,595/-
16	Laptop DELL Vostro 1510 (Sr. No. 68GL2BS, D8GL2BS, 26HN2BS,68GL2BS, B8GL2BS, 78GL2BS, CIDN2BS, 58GL2BS, 88GL2BS, 98GL2BS, 48GL2BS)	11	4,34,500/-
17	HP/8300 Desktop computer with preloaded operating system Microsoft windows 8	20	7,56,000/-
18	HP/830 Desktop Computer with Preloaded operating System	15	
19	i) Carbon Dioxide 2 kg	01	19,096.87/-
	ii) Foam Mechanical	01	
	iii) Water	01	
20	Drawing Desk Frame	110	55,249/-
21	Drawing Stool	180	52,189/-
22	G.I.Pipe 2350 mm dia	8mtr	68,888/-
23	Fluid Mechanics Test Bench	02	2,95,510/-
24	SAJ make Eddy current dynamometer	01	1,12,760/-
25	Constant temperature oil bath with ms powder stand	01	68,000/-
26	Metzer - m Trinolar Research metallurgical microscope	01	1,24,110/-
27	Microhardness Tester Shimadzu make	01	1,602300 yen
28	Measuring microscope	01	404468 yen
29	Automatic Specimen mounting press Bain mount	01	1,18,390/-

30	Slip Gauge Accessories	1 set	1,58,207/-
31	Digital Venturis 466 as Nodes	04	3,62,660/-
32	2KVA CVT Elect.	01	95,250/-
33	Rank Tailor Hobson Surface Roughness Testing Instrument Surtronic 3+(Battery Operated Printer)	01	1,90,179/-
34	Gear Rolling Tester	01	96,286/-
35	Baker Dot Matrix 24 column print Module "PM" suitable for ED1/EC10	01	10,400/-
36	Monochromatic Light Source	01	52,312/-
37	Refrigeration Test Rig	01	75,240/-
38	Pyrometer	01	1,44,000/-
39	Universal Testing Machine	01	1,50,000/-
40	Pyranometer	01	1,84,653/-
41	Vibration Laboratory	01	86,130/-
42	Cam Analysis Apparatus	01	37,125/-
43	Journal Bearing Apparatus	01	66,037/-
44	Coriolis Acceleration Apparatus	01	79,531/-
45	Lab View Software	01	1,41,614/-
46	CRIO-9025	01	3,15,188/-
47	CRIO-9118	01	2,94,228/-
48	NI 9234	01	2,43,661/-
49	NI 92194	01	72,181/-
50	12" Industrial Panel	01	72,181/-
51	PS-2 Power supply for field point	01	1,68,074/-
52	CDAR 9174 Compact	01	83,250/-
53	Stat graphics centurion professional xv -01 box with CD and Manual	02	62,450/-

54	Metallurgical sample saw	01	1,23,750/-
55	Wear and Friction monitor	01	3,93,750/-
56	Refrigeration test ring	01	84645/-
57	Fluid mechanics test bench 02	01	2,95,510/-
58	Signal cylinder Two stroke petrol engine test ring.	01	87,912/-
59	Fluid mechanics test bench 01	01	1,85,364/-
60	Heat transfer in Forced Convection	01	59,061/-
61	Wire Electrical Discharge Machine- ECOCUT- Electronica	01	2509000/-
62	Constant temperature oil bath with ms powder stand	01	68000/-
63	Inverter 600 VA luminous make	01	10940/-
64	Electromagnetic Flow Meter	01	23388/-
65	Magnetic dial stand	01	6750/-
66	Monochromatic Light Source	01	45562/-
67	Mounting Arrangement	01	6325/-
68	Erichsen cupping tester	01	41468/-
69	CNC Simulators for offline programming (HASS USA Make, Model: CSMD)	06	999000/-
70	High Speed Camera	01	2298339/-
71	Mini smart classroom	01	178925/-

11.2 Laboratory Expenditure

Sr. No.	Name of the Laboratory	Total cost Laboratory
1	Refrigeration and Air Conditioning Lab	1,92,972/-
2	Fluid Mechanics and Fluid Machinery Lab	5,31,089/-
4	Renewable Energy Lab	2,56,584/-

5	I.C. Engine	8,28,242/-
6	Thermal Engineering Lab	7,75,634/-
7	Material Science / Engineering Metallurgy Lab	6,68,608/-
8	Material Testing Lab (SOM)	1,85,528/-
9	Photochemical Machining Lab (PCM)	1,14,850/-
10	Theory of Machines And Machine Dynamics Lab/ Engineering Mechanics Lab	20,22,758/-
12	Metrology and Quality Control Lab	18,94,045/-
13	CAD / CAM Lab	18,92,204/-
14	Center for Advanced Machining Technology (CAMT)	13382127/-

SOME MAJOR INSTRUMENTS IN THE LABORATORIES



12. PROJECTS

12.1 List of Undergraduate Projects

Sr. No.	Name of the Project	Advising Faculty
1	Improvements in Design, Manufacturing and Analysis of cardiovascular stent by Photochemical Machining	Dr. M. Sadaiah
2	Surface Texturing of Copper and stainless steel using Photochemical Machining	
3	Preparation of Biodiesel from Non-edible seeds& Testing on CI Engine	Dr. M. S. Tandale
4	Preparation of Biodiesel from Non-edible seeds& Testing on CI Engine (Waste Cooking Oil)	
5	Theoretical and Experimental Study on Solar Chimney System	Mr. Anand Chapekar & Dr. M S Tandale
6	Corrosion of Co-Cr-Mo Alloy for Biocompatibility	Dr. V. G. Sargade
7	Assessment of Performance of CBN Inserts in Turning of Alloy	Dr. R. S. Pawade
8	Industrial Project in Duflon, MIDC Mahad	
9	Evaluation of stress corrosion cracking characteristics of pH 17-4 stainless steel after WEDM	
10	Wire EDM- Cladding Metal Plates	
11	Application of water vapour in end Milling	
12	Design and development of coated forceps for ENT applications	Mr. Shrikant Thorat & Dr. R S Pawade
13	Bamboo Bicycle	Dr. R. P. Kate
14	Waste disposal system for a village	
15	Experimental Analysis on temperature generation in Bone Drilling Operation.	Dr. H. N. Warhatkar
16	HVAC	Dr. Neeraj Agrawal
17	Simulation of Air Purification unit for Engine Exhaust system.	Dr. B. F. Jogi
18	Effects of various parameters on Incolloy 825	
19	Automation in TIG Welding	Dr. D. B. Waghmare
20	Solar Rice Reaper	

21	Wire EDM- Cladding Metal Plates	Prof. S. R. Dhale(transferred to Dr. R. S. Pawade)
22	Application of water vapour in end Milling	
23	Interrupted Hard Turning	Mr. Shrikant Thorat
24	Machinability Assessment of Hardened steel in turning Using Water Vapour as coolant	Mr. P.D. Agwane
25	Performance evaluation and characterization of domestic Parabolic Solar Cooker	
26	Thermal energy storage by using Flyash	Dr. G S Warkhade & Mr. Shrikant Shet
27	Turbocharged engine simulation	
28	Performance assessment of CBN insert in Turning of Hardened Steel	Mr. Bhushan Nikam
29	Use of water vapour in Milling	

12.2 List of TPCS Projects

Sr. No.	Name of the Project	Advising Faculty
1	Tesla Coil Wireless power	Dr. M. Sadaiah
2	Battery operated solar system	Dr. M. S. Tandale
3	Fertilizer sprayer using compressed air	Dr. V. G. Sargade
4	Analysis of milk on the basis of colour, viscosity, specific gravity	Dr. R. P. Kate
5	Ladder equalizer	
6	Smart back-pack	Dr. R. S. Pawade
7	Desalination of seawater	
8	Low cost residential flow-meter	Dr. Neeraj Agrawal
9	Portable home-made biogas unit	Dr. B. F. Jogi
10	Adjustable stair walking stand for disabled person	Dr. D B Waghmare

11	Sewage waste collector	Dr. H. S. Joshi
12	Bamboo load carrier	
13	Multipurpose plough cum sowing equipment	Dr. G S Warkhade
14	Hand pump working on see-saw mechanism	
15	Power generation by staircase system/Removal of coconut from tree	Mr. S. R. Dhale
16	Low cost air-conditioner	Mr. Bhushan Nikam
17	Portable rotating holder	
18	Woodcutter for domestic purpose	Mr. Prashant Agawane
19	Pedal operated hacksaw	

12.3 List of Post Graduate Projects

Sr. No.	Name of the Project	Advising Faculty
1	A study on optimization of geometric features of a Coronary Stent	Dr. M. Sadaiah
2	Finite Element Simulation and Analysis of Fiber Laser Welding of SS Sheet	Dr. D. B. Waghmare
3	Industrial Case Study of Low Pressure Die Casting of AlSi9Cu1Mg Aluminium Alloy to Reduce Casting Defects	Dr. D. B. Waghmare
4	Design, Development and Testing of Rolling Ball End Tool for Single Point Incremental Forming Process	Dr. H. S. Joshi
5	Study of performance parameters and emission characteristics of CI engine using Cashew nut shell liquid methyl ester (CNSLME)	Dr. M. S. Tandale
6	Study on performance of CI engine using Kusum Biodiesel (KOME)	Dr. M. S. Tandale
7	An experimental study on prototype of Solar Chimney Power Plant	Dr. M. S. Tandale
8	Passive Solar and Energy Efficiency in Building : A case study	Dr. N. Agrawal
9	Performance Improvement of the Domestic Refrigerator using phase change materials	Dr. N. Agrawal
10	Studies on the fish supply chain management in Raigad district and its preservation techniques	Dr. N. Agrawal

12.3 List of PhD candidates

Sr. No.	Name of the Candidate	Registration Number	Broad area of Research	Research Guide
1	ThoratShrikant B.	RS20140115	Some investigations in photochemical machining of cobalt chromium alloy.	Dr. M. Sadaiah
2	KadamShirish V.	RS20140117	Some investigations on machinability of SAF2205 and SAF2507 duplex steel in end milling.	Dr. M. Sadaiah
3	Chavan Ajay A.	RS20120109	Hard turning using coated carbide tools.	Dr. V.G.Sargade
4	Nipanikar Suresh R.	RS20120112	Machinability Studies of Ti6Al4V in Dry and Minimum Quantity Lubrication (MQL) Environment.	Dr. V.G.Sargade
5	ShindeBabasaheb D.	RS20140113	Machinability assessment of low electrical conductivity ceramics by using WEDM.	Dr. R. S. Pawade
6	KhadtareAvinash N.	RS20140108	Experimental investigation and modelling in micro-drilling of TBC Inconel 718 superalloy.	Dr. R. S. Pawade
7	JagtapKetan A	RS20120104	Investigation on Machined Surface Integrity in CNC Turning of Biocompatible Co-Cr-Mo Alloy	Dr. R. S. Pawade
8	MadaviKishor R.	RS20140110	Optimization of welding process parameters.	Dr. B.F. Jogi
9	Lohar Ganesh S.	RS20140109	Structure property relationship studies on polymer nano-composite.	Dr. B.F. Jogi
10	BhanavaseVishavjit L.	RS20140106	Study of tribologicalbehaviour of polymer composite.	Dr. B.F. Jogi
11	NirantarShripad R.	RS20150103	Preparation and Characterization of Polymer based nano composite.	Dr. B.F. Jogi
12	VarierRanjith S.	RS20150104	Study of machining behaviour of polymer based composite.	Dr. B.F. Jogi
13	Bhise Vishal Y.	RS20150101	Sustainable manufacturing: An Eco-intelligent design of product system	Dr. B.F. Jogi
14	PatilOmprakash S.	RS20120117	Transcritical CO ₂ Heat Pump System: Cycle Modification and Optimization	Dr. N. Agrawal
15	JadhavPravin L.	RS20120115	CO ₂ Transcritical System: Studies on Capillary Tube	Dr. N. Agrawal
16	Vinod C Todkari	RS20120118	Investigations on various types of Hydraulic Jump	Dr. R. P.Kate
17	Gujar R.A.	RS20140101	Some investigations in Biomechanical properties of Lower Extremity Bones	Dr. H. N. Warhatkar

18	Pansare S. R.	RS20140102	Some studies on Effect of Crack in Beam/Shaft	Dr. H. N. Warhatkar
19	Patil S.R.	RS20140104	Some studies on investigation into Torsional Vibration Control Using Smart Dynamic Damper	Dr. H. N. Warhatkar
20	Wargante S.R.	RS20140105	Some studies in Dynamic Analysis of Bones	Dr. H. N. Warhatkar
21	Kadhane Somnath Hanumant	RS20120106	Some investigation into mechanical behaviour of soft biological tissues	Dr. H. N. Warhatkar
22	Mahesh Pol	RS20160101	Topic yet to be decided	Dr. H. S. Joshi
23	Rohit V. Zende	RS20180102	Intelligent Monitoring of Cylindrical parts using Industry 4.0 Approach	Dr. R. S. Pawade
24	Pankaj M. Dhongade	RS20180103	Processing of Polymer-Matrix Composite Material	Dr. V.G.Sargade
25	SagarSakharkar	RS20180104	Mechanical Micro-drilling of Titanium CFRP stack material	Dr. R. S. Pawade
26	Prasad J Waste	RS20180105	Some Investigations in WireEDM	Dr. B. F. Jogi
27	SagarAjanalkar	RS20180106	Robot based ASRS System	Dr. H. S. Joshi

13. INDUSTRY INSTITUTE INTERACTION

13.1 Industry Projects by Students

Sr. No.	Name of the Student	Name of the Project and Industry	Advising Faculty
1	Sujay S. Kekare	Development of Natural Fiber Reinforced Polymer matrix composite coating for aesthetic application. Mahindra CIE Automotive Ltd.	Dr. B. F. Jogi
2	Sumit R. Bhatia	Industrial Case study of defects in Low Pressure Die Casting of AlSi9Cu1Mg to reduce it and specify its remedies. Alicon Castalloy Ltd.	Dr. D. B. Waghmare
3	Abhyanka Jivane	Mechanization of the Brush plating process for the turbocharger shaft of the diesel engine. Cummins India Ltd.	Dr. V. S. Sargade
4	Akash Bleure	Development of process for super-smooth optical surface for high reflectivity flat mirror substrate. RRCAT, Indore.	Dr. R. S. Pawade
5	Akshay Dhaigude	Design and Development of a compound parabolic concentrator solar heating system: a Case Study. Heatray Pvt. Ltd.	Dr. N. Agrawal
6	Vivek Dawange	Enhancement of steam economy of sweet water evaporation plant at Hindustan Unilever Ltd. Hindustan Unilever Ltd.	Dr. M. S. Tandale

7	Vishal Jagdale	Achieving low temperature combustion in Diesel engines using EGR techniques in HCCI (IIT Indore)	Dr. M. S. Tandale
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13.2 Industry Institute Interaction by Faculty

Sr. No.	Name of the Faculty	Name of the Industry and Interaction for
1	Mr. Anand J Chapekar	<ul style="list-style-type: none"> a. Completed one academic project in collaboration with N.C.L., Pune for Solar Hot Water cooking system. b. Completed one academic project in collaboration with Freudenberg Air Filtration Technologies India Ltd. for 3D modeling and CFD analysis of HEPA Air Filter duct housings. c. Organized one-day training program on Automotive Controls and Telemetry – Hardware Design, Manufacturing, Software Development and Testing by Matt Bieker, Platform Leader, Hyster-Yale, Portland, Oregon, USA. d. A joint journal paper writing is in progress for CFD performance validation of 36 feet diameter axial fan for cooling towers in collaboration with Hamon Shriram Cottrell (HSC) India Ltd. Mumbai. e. Organized faculty site visit to Reliance Data Center, Ghansoli to study Cooling Tower banks with 24 feet diameter axial fans supplied by HSC catering for the data center heat dissipation. f. Organized faculty factory visit to Thermax Ltd., Chinchwad, Pune plant. g. Organized faculty factory visit to Vam Press Ltd. Bhor. h. Organized student's factory visit to Freudenberg Air Filtration Technologies India Ltd. at Sanaswadi, Pune. i. Discussions are in progress for an interdisciplinary project with Thermax Ltd. for packaging of catalytic resins. The project scope is expected to include contributions from Chemical Engineering as well as Mechanical Engineering faculties for CFD, thermal and mechanical design aspects. j. Two M Tech TFE students acquired job placements after working on industry projects (Rakhoh Industries, Pune and CCTech, Pune). k. Provided lead to T&P Cell from Harman Connected Services, A Samsung Division for campus interviews.

13.3 Industry/Exhibition visits by Faculty, UG, PG students and Research candidates

Sr. No.	Name of Industry/Exhibition	Place	Visit by
1	Machine Tool Expo 2018	Pune	Faculty, PG students and Research candidates
2	POSCO Maharashtra Steel Pvt. Ltd	Mangaon	Faculty and UG students

3	Ador Welding Technology Pvt. Ltd.	Pune	Faculty, PG students and Research candidates
4	Fraunius India Ltd.	Pune	Faculty, PG students and Research candidates
5	Keepsake Welding Research & Skill Development Centre	Ahmedabad	Faculty and PG students
6	DuFlon Industries Pvt. Ltd	Ahmedabad	Faculty and PG students
7	ACREX 2K19	Mumbai	Faculty and UG students

14. WORKSHOPS ATTENDED BY FACULTY MEMBERS, RESEARCH SCHOLARS AND PG STUDENTS

14.1 Workshops attended by Faculty Members

Sr. No.	Title	Date	Participants
1	TCS-Pan IIT Conclave, IIT Delhi,	19-20 January, 2019	Dr. R. P. Kate
2	World Bamboo Workshop, Manipur	4-8 February, 2019	Dr. R. P. Kate
3	Traditional & Environmentally sustainable Construction Technology Workshop, Sawantwadi	31 st March, 2019	Dr. R. P. Kate
4	Pedagogical and Assessment Techniques for Product Design Engineering, Dr. BATU	Feb 25- March 6, 2019	Dr. H. S. Joshi
5	UGC Training of Trainers Workshop, IISER Pune	27-29 March, 2018	Dr. N. Agrawal
6	International Conference on Renewable Energy and Climate Change REC 2019, IITRAM Ahmedabad	1-2 February, 2019	Dr. N. Agrawal
7	Effective Implementation of Outcome based Education, Thaigarajar College of Engineering, Madurai	Feb 25- March 3, 2019	Dr. M. S. Tandale
8	Pedagogical and Assessment Techniques for Product Design Engineering, Dr. BATU	Feb 25- March 6, 2019	Dr. D. B. Waghmare
9	Recent Trends in Welding and Joining Technology, Dr. BATU	26-30 November, 2018	Dr. D. B. Waghmare
10	Research Methodology for Engineering and Management Research, VJTI	9-14 July, 2018	Dr. D. B. Waghmare
11	Recent Trends in Welding and Joining Technology, Dr. BATU	26-30 November, 2018	Dr. R. S. Pawade, Dr. B. F. Jogi, Dr. H. S. Joshi

14.2 Expert Lecture by Faculty Members

Sr. No.	Name of the Event	Faculty delivering the Lecture
1	'Sustainable Development: Role of Engineering Teachers, AICTE sponsored FDP on Sustainable Development: Theory and Practice', Adarsh Institute of Technology and Research Center	Dr. R. P. Kate
2	'Research Paper: Preparation, Submission & Review', Sharada Technical Institute, Satara	Dr. N. Agrawal
3	'CO ₂ Transcritical Heat Pump Systems', Walchand College of Engineering, Sangli	Dr. N. Agrawal
4	'Duct Design: an overview', Walchand College of Engineering, Sangli	Dr. N. Agrawal
5	'Recent trends in research on laser welding', STTP on Recent Trends in Welding and Joining Technology, Dr. BATU	Dr. D. B. Waghmare
6	'Comparison of single and multiple spot resistance welding', STTP on Recent Trends in Welding and Joining Technology, Dr. BATU	Dr. D. B. Waghmare
7	'Central composite design for design of experiments - Case study of laser welding', STTP on Research Methodology for Engineering and Management Research, VJTI	Dr. D. B. Waghmare
8	'Friction Stir Welding', STTP on Recent Trends in Welding and Joining Technology, Dr. BATU	Dr. H. S. Joshi
9	'Basics of Welding & Tungsten Inert Gas Welding', STTP on Recent Trends in Welding and Joining Technology, Dr. BATU	Dr. R. S. Pawade
10	'Metallurgy of Welding', STTP on Recent Trends in Welding and Joining Technology, Dr. BATU	Dr. B. F. Jogi

15. ACADEMIC ACHIEVEMENTS

15.1 Faculty Achievements

Following list shows the statistics of citation index published by the faculty members of the department.

Sr. No.	Name of the Faculty	Total citations	h Index	i10 Index
1	Dr. N. Agrawal	2724	28	58
2	Dr. R. S. Pawade	1025	13	15
3	Dr. M. Sadaiah	211	9	9
4	Dr. M. S. Tandale	165	--	--
5	Dr. B. F. Jogi	153	4	4

6	Dr. R. P. Kate	106	5	4
7	Dr. H. N. Warhatkar	10	2	0
8	Dr. G. S. Warkhade	8	2	0
9	Dr. H. S. Joshi	7	0	0

15.2 Distinguished Alumni of the Department

Sr. No.	Name	Name of the Company/Institution	Designation
1	Chandrashekhar Singh	Infosys Ltd.	Lead Technology Specialist
2	Vikram Masur	Siemens Indu Software Pvt. Ltd.	Manager
3	Kantilal Puri	Thyssenkrupp Industries, India	Manager
4	Sandeep Gosavi	John Deere Technology Center, India	Manager
5	Nilesh Kargutkar	Infosys Ltd.	Senior Engineering Manager
6	Amey Pore	Tata Technologies	Project Manager
7	Indranil Marathe	Precision Auto & Robotics Ltd.	Lead Member
8	Rajesh Ghadi	Air India	Senior Engineer
9	Jitendra Pathak	Dextra India	Director- Sales & Operations
10	Jitendra Deshmukh	Voltas Ltd.	Procurement Head
11	Nitin Tiwari	Ebmpapst India Pvt. Ltd.	Regional Sales Manager
12	Milind Choudhary	Sterling & Wilson Pvt. Ltd.	Procurement Senior Manager
13	Sachin Pawar	ShapoorjiPallonji	Assistant General Manager
14	Raju More	Reliance Group of Industries	Manager
15	Dr.Shivkumar Iyer	Rowan University, USA	Assistant Professor
16	Sandip Jadhav	CC Tech Pune	Chief Executive Officer
17	Nagesh Belure	Nyantara Enterprises, Pune	Entrepreneur

18	Yogesh Patil	DuFlon Industries Pvt. Ltd.	Head, Research & Development
19	Dr. Vikas Sargade	Dr. BATU	Professor, Former Registrar, Dean

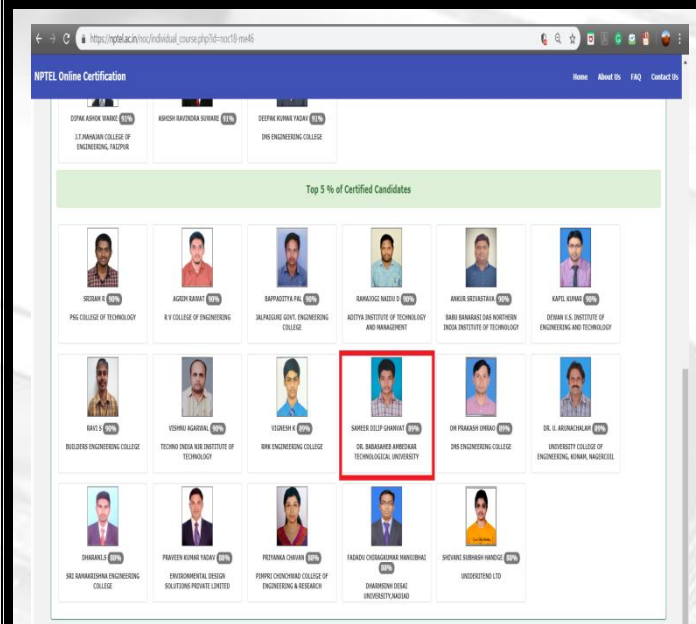
15.3 STUDENTS ACHIEVEMENTS


15.3.1 ISHRAE Chapter

- Madhurani Dharpure and Pankaj Jagtap secured first prize for **Slambook competition**.
- Madhurani Dharpure secured the second- runner up position in **Mock Interviews** by various Industrialists.
- Deepak Sawant and Vijay Chaughule secured the second runner-up prize for **ISHRAE Quiz**.
- Deepak Sawant secured the second runner- up for the **Tech-Click**.

15.3.2 NPTEL Local Chapter

- For the Online course of Refrigeration and Air-Conditioning from **NPTEL**, three students qualified from the course.
- Mr. Sameer Ghanavat secured a spot among top 5% at the national level of the online course.





Elite

NPTEL Online Certification
(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

SAMEER DILIP GHANVAT

for successfully completing the course

Refrigeration And Air-Conditioning

with a consolidated score of **89 %**


Online Assignments 23.33/25

Proctored Exam 65.25/75


Total number of candidates certified in this course: **672**

Prof. B. K. Gandhi
Coordinator, Continuing Education Center
NPTEL Coordinator, IIT Roorkee

Aug-Sep 2018
(8 week course)



Indian Institute of Technology Roorkee



Roll No: NPTEL18ME46521590192

To validate and check scores: <http://npTEL.ac.in/hoc>

15.3.3 GATE Scores (GATE 2019)

Following students have a qualified GATE 2019 score from the department of mechanical engineering during academic year 2018-19.

Sr. No.	Name of Student	Registration No.	GATE 2019 Score
1	Sameer Dilip Ghanvat	20150119	52.27
2	MandarRajshekarPatil	20150139	41.67
3	Abhishek Ganesh Ghadi	20150118	40.04
4	KunalChaudhari	20150110	37.09
5	ShantanuPatil	20150141	31.88
6	PrashikNimgade	20150138	30.53

16. DEPARTMENTAL ACTIVITIES BY FACULTY AND STUDENTS

16.1 Industrial and Exhibition Visits

Various Industrial and Exhibition visits were conducted by the department with the help of UG, PG students and Research candidates. The main motto was to expose the students to the new developing technologies and provide the application and understanding of the subjects taught in the department academics.



16.2 ISHRAE Chapter 2018-19

The local chapter of ISHRAE (Indian Society of Heating, Refrigerating & Air Conditioning Engineering) conducted various activities under their banner. Various events were conducted and local chapter of Dr. BATU brought numerous accolades with them. The working committee of year 2018-19 is given below.

Sr. No.	Name of Member	Year	Position
1	Sameer Ghanvat	4 th	President
2	RuchitaZeale	4 th	Secretary
3	SiddharthBhopatrao	3 rd	Treasurer
4	ChaitnayaRaut	4 th	Active Member
5	VivekMohite	3 rd	Active Member
6	Deepak Sawant	3 rd	Active Member
7	AniketDeshmukh	3 rd	Active Member
8	DeepikaPatil	3 rd	Active Member
9	KomalPatole	3 rd	Active Member
10	SanketZade	2 nd	Active Member
11	GovindKulkarni	2 nd	Active Member
12	ParasmitaBiswas	2 nd	Active Member

In total of 79 members, 34 were from UG 4th year, 23 were from UG 3rd year, 18 from UG 2nd year and 4 from PG course.

Some of the activities conducted by ISHRAE Dr.BATU local chapter during the academic year 2018-19 were as follows:

1. AQUEST 2K19
2. JAMBOREE 6
3. Job Junction 2018-19
4. National Student Design Competition
5. ACREX 2K19
6. Mock Interview(Dr. BATU)
7. Technical Paper Presentation



ISHRAE LOCAL CHAPTER 2018-19



16.3 MESA (Mechanical Engineering Students Association), TNPC (Members of Mechanical Engineering) and SAE (Society of Automobile Engineers)



17. FIVE-YEAR DEVELOPMENT PLAN (2016-2021)

Expansion of Academic Activities:

- Academic programs to be added:
 - ✓ M. Tech. in Design Engineering
 - ✓ M. Tech. in CAD/CAM in collaboration with Indo-German Tool Room
- To help in fetching QIP Centre to the university and become part of it.
- Each faculty member will have average three research scholars

Research & Development & Innovation:

- Number of research scholars to be enhanced to 3 research scholars per faculty at any point of time.
- Each faculty member with PhD qualification will have at least one sponsored project funded by external agency such as UGC/DST/AICTE/BRNS at any point of time.
- Each faculty member with PhD qualification will have at least one consultancy project from Industry per year.
- At least five commercial products/processes/ technologies to be developed by 2021.

Extension & Outreach Activities

- At least two CEPs/Workshops for industries/academia will be organized every year.
- At least one National/International conference to be organized every alternate year.

- At least 5 skill development program will be organized for the unemployed youth in the vicinity

Faculty & Staff Development

- Faculty will undergo on an average one week of training per year in the industry.
- Supporting staff will also undergo on an average one week of training as per training needs.

Networking

- At any point of time, at least five network projects in collaboration with organizations like ICT, IIT, RRCAT, BARC and NCL will be going on.

Co-curricular/Professional Chapter Activities

- SAE BAHA/ISHRAE chapters will be conducting activities with full swing. In addition, an ASM Students' Chapter is to be established.
- Robo-Study Circle will be established for the students.

18. DEPARTMENTAL STRENGTHS, WEAKNESSES, OPPORTUNITIES AND CHALLENGES

Major Strengths of the Department:

- Highly qualified, committed and stable faculty.
- Strong linkages with IIT-B, BARC and ICT Mumbai.
- Liberal faculty development policy and attitude.
- Residential campus.
- UGC grants under 12(B).
- Good research culture & work culture.
- Autonomy & academic freedom.

Weaknesses of the Department:

- No grant for M. Tech. Program.
- Location disadvantages:
 - a. Non-availability of mechanical engineering industry in the vicinity
 - b. Placement
 - c. Attracting visiting faculty
- Infrastructure: Lab space on the ground floor

Opportunities:

- Demand for researchers and innovators due to knowledge-driven economies:
 - a. Enhancing M. Tech. programs particularly in inter-disciplinary areas, starting dual degree programs
 - b. Enhancing Ph.D. programs
 - c. To become a QIP Centre for M. Tech. & Ph.D. programs
- Enhancing sponsored research, consultancy, CEPs for academia and industry
- Technical services to rural community by developing appropriate technologies
- Public-private partnerships

Challenges:

- Retention of faculty
- Attracting talented students
- Competition from foreign universities and private universities
- Competition from countries like China, Philippines, etc.