ANNUAL REPORT

(2019 - 2020)

Department of Mechanical Engineering

Dr. Babasaheb Ambedkar Technological University

Lonere - 402 103, Dist- Raigad, Maharashtra (India)

CONTENTS

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 2019-20. 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

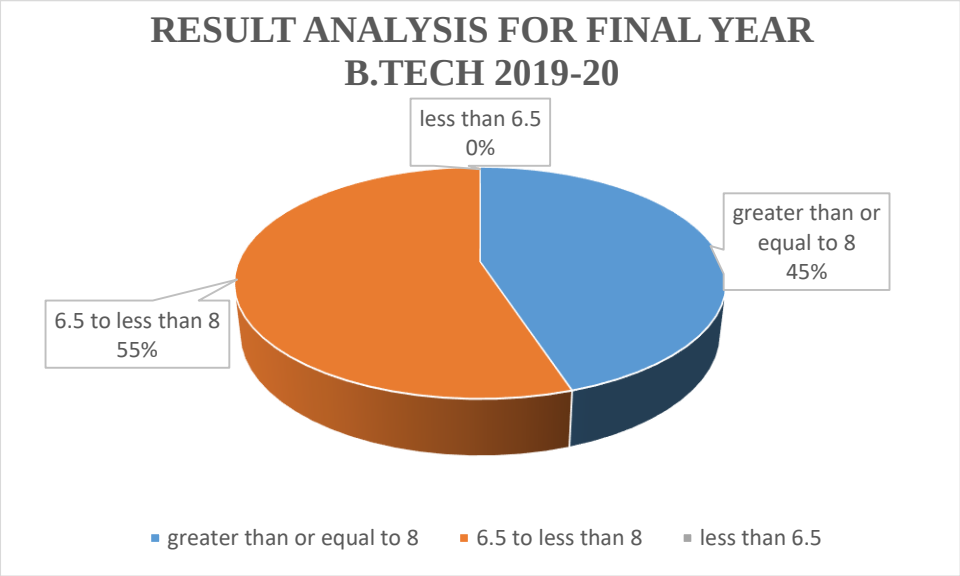
Academic Program		Duration	Intake
B. Tech	Mechanical Engineering	Four Years	60
M. Tech	Manufacturing Engineering	Two Years	18
M. Tech	Thermal Engineering	Two Years	18
Ph. D.	Mechanical Engineering	NA	27

5.1 UG Students Statistical Information

Year	Category Wise Distribution								Total		
	Open	OBC	VJNT	SC	ST	SBC	J&K	TFWS	M	F	T
First	16	15	7	8	0	9	0	0	49	6	55
Second	26	31	9	12	3	2	0	0	69	14	83
Third	18	26	11	11	4	1	0	0	55	16	71
Four	22	26	10	10	1	1	0	2	53	19	72

5.2 Result Analysis

B. Tech Pass Out Students' Data (CGPA)	
Pointer	**No. of Students**
8.0-10.0	31
6.8-8	38
<6.8	0
Fail	0
Total	**69**



5.3 Campus Placements

Following students from the department have got campus placement during academic year 2019-20 from Training and Placement Cell, DBATU.

Sr. No.	Name of Student	Name of the Company	CTC offered
1	Vijay Chougale	AQUAFARM	3
2	Prathamesh Gawade	RAJASTHAN TRANSFORMER	3.7
3	Rahul Salvi	SUDARSHAN CHEMICALS	4
4	Ashutosh Biradar	SUDARSHAN CHEMICALS	4
5	Pankaj Jagtap	BYJU'S (BDA)	10
6	Komal patole	JAYSHREE POLYMER	1.8
7	Sneha mane	JAYSHREE POLYMER	1.8
8	Akash Nagargoje	JAYSHREE POLYMER	1.8
9	Mayur Tayade	JAYSHREE POLYMER	1.8
10	Asma Shikalgar	JAYSHREE POLYMER	1.8
11	Deepak Sawant	Squent Mahad	3 LPA

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.)

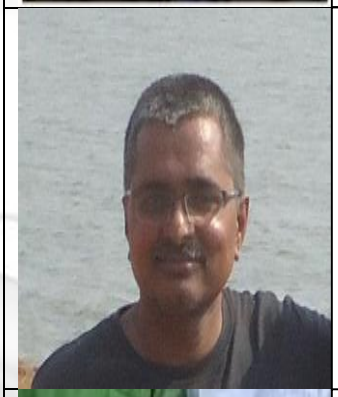
Dr. V.G. Sargade

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.

Dr. G. S. Warkhade

Post: Assistant Professor

Education: B.Tech. (Mechanical Engg)

M.Tech. (Thermal and Fluids Engg.)

Ph. D. (Mechanical Engg.)

Dr. D. B. Waghmare

Post: Assistant Professor

Education: B. E. (Mechanical Engg.)

M. E. (Mechanical - Production Engg.)

Ph. D. (Mechanical Engg.)

Prof. S. R. Dhale

Post: Assistant Professor

Education:B. E. (Mechanical Engg.)

M. E. (Design Engg.)

Ph.D. Ongoing (Manufacturing Engg.)

Prof. A. J. Chapekar

Post: Adjunct Faculty

Education: B. E. (Mechanical Engg.)

M. Tech (Thermal Engg.)

MBA (Marketing)

Ad-hoc Faculty

Mr. P D Agwane

Post: Assistant Professor

Education: M. Tech (Design Engg.)

Mr. Ajinkya Gangan

Post: Assistant Professor

Education: M. Tech (Design Engg.)

Mr. Ashish Mahajan

Post: Assistant Professor

Education: M. Tech (Manufacturing Engg.)

Technical Supporting Staff

Mr. R. M. Chavan

Post: Lab Assistant

Education: C.E.A.(BTE. Mumbai), B.A (Mumbai University)

Experience in dept: 19 years

Mr. A. Patil

Post: Lab Assistant

Education: Diploma in Mechanical Engineering

Experience in dept: 8 years

Mrs. Manisha Umesh Sakate

Post: Lab Assistant

Education: B.Sc. in Microbiology

Experience in dept: 7 years

7. ADDITIONAL RESPONSIBILITIES TO THE FACULTY

Dr. M. Sadaiah

- Head, Mechanical Engineering Department
- Registrar(I/C)
- 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
- M.Tech Faculty Advisor

Dr. V.G. Sargade

- Dean, Students' Welfare

Dr. N**. Agarwal**

- Training and Placement Officer
- Faculty Advisor ISHRAE

Dr. R. S. Pawade

- Head Procurement University
- Nodal Officer TEQIP 3 Procurement Cell
- Coordinator, UGC Cell and Manufacturing Engineering
- Workshop Superintendent

Dr. H. N. Warhatkar

- NSS Coordinator

Dr. B. F. Jogi

- Rector Sahyagiri Hostel
- OSD Affiliation,

Dr. H.S. Joshi

- Coordinator, Technical Event Committee

Dr. G. S. Warkhade

- Associate Dean of Sports
- Time-table coordinator

Dr. D. B. Waghmare

- Rector, Sahyagiri Hostel
- Departmental Coordinator: IQAC, Annual Report
- OSD Establishment Section
- Subject Chairman for B. Tech (EG) and M. Tech (AJT and PCT)

Prof. S. R. Dhale

- Departmental Coordinator: Alumni Activities

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 Nyayadhish
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. Dhananjay S Satelkar, **Bhagwan F Jogi**, Shrikant B Thorat, Ajay A Chavan,2019, "Activated pulsed-tungsten inert gas welding of DSS 2205",Techno-Societal 2018.
2. Ganesh S Kadam, **Raju S Pawade**,2019, "Machining Induced Residual Stresses in Green Machining of Inconel 718",Techno-Societal 2018.
3. Amey Pawade, Justin Mariyil, Lakshmi Ilanko, Pushkar Mahale, **Raju Pawade**,2019, "Wire EDM Characteristics of Biomedical Alloy AISI 316L",Techno-Societal 2018.
4. Ketan A Jagtap, Chandrakant Y Seemikeri, **Raju S Pawade**,2019, "Some Investigations on Cutting Forces in Face Turning of Co-Cr-Mo Biocompatible Alloy by Resonse Surface Methodology (RSM)" ,Techno-Societal jhb,2018.
5. Authors: K Shende, S Sonage, P Dange, **M Tandale**, 2019, "Optimization of Biodiesel Production Process from Waste Cooking Oil Using Homogeneous and Heterogeneous Catalysts Through Transesterification Process, Techno-Societal 2018, 531-542.
6. Ganesh Dhurde, **Raju Pawade**, P. K. Brahmankar, Some Investigations into Wire Electro-Discharge Machining of 17-4 PH Stainless Steel Proc. of International Conference on Precision, Meso, Micro and Nano Engineering, COPEN 11, Indian Institute of Technology, Indore, Dec. 12-14, 2019, pp.

7. Ganesh S. Kadam1, **Raju S. Pawade**, Analysis of surface roughness in HSM of Inconel 718 using water vapour as green cutting fluid, Proc. of International Conference on Precision, Meso, Micro and Nano Engineering, COPEN 11, Indian Institute of Technology, Indore, Dec. 12-14, 2019, pp.
8. **Raju Pawade**, Bhushan Nikam1Nishad Ghode1, Pranit Jadhav, Siddhi Bhosale, Akshay Jagtap, Machinability Assessment of AISI 52100 Alloy Steel in Turning using Water Vapour as a Coolant, Proc. of International Conference on Precision, Meso, Micro and Nano Engineering, COPEN 11, Indian Institute of Technology, Indore, Dec. 12-14, 2019, pp.
9. Avinash Khadtare, **Raju Pawade**, Suhas Joshi, Investigation of Micro-Holes Characteristic for Straight and Inclined drilling in Thermal Barrier Coated Inconel 718 Superalloy, Proc. of International Conference on Precision, Meso, Micro and Nano Engineering, COPEN 11, Indian Institute of Technology, Indore, Dec. 12-14, 2019, pp. 103.

9.2 International Journals

1. Thorat, Shrikant, and **Mudigonda Sadaiah** ,2019,The effect of residual stresses, grain size, grain orientation, and hardness on the surface quality of Co–Cr L605 alloy in Photochemical Machining, (SCI, Elsevier, IF: 4.650),Journal of Alloys and Compounds
2. S M Banait, Jinoop A N, H Kumar, **Raju Pawade**,2020, Experimental Investigation on Laser Directed Energy Deposition of Functionally Graded Layers of Ni-Cr-B-Si and SS316L (SCI, Elsevier, IF: 3.22),Journal of Optics and Laser Technology
3. Nikhil V Khatekar, **Raju S Pawade**,2019,Analysis and modeling of surface characteristics in electrophoretic deposition–assisted internal polishing of AISI 304 steel (SCI, Springer, IF: 2.95),The International Journal of Advanced Manufacturing Technology
4. **Raju Pawade**, Avinash Khadtare, Dhanashree Dhumal and Vishal Wankhede,2019,Machinability Assessment in High Speed Turning of High Strength Temperatur Resistant Superalloys (World Scientific),Journal of Advanced Manufacturing Systems,1.34.
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 8-9 Jan 2019
6. Juned R Kazi, **Neeraj Agrawal**, Experimental Investigation of Dehumidifier Hybrid Air conditioner Integrated Zeotropic Refrigerant Blend R-407C Air Source Water Heat Pump, REC 2019, IITRAM Ahemdabad, https://doi.org/10.1007/978-981-32-9578-0_16, ISBN 978-981-32-9577-3, PP 175 – 183, Springer Nature Singapore
7. Gajbhiye M, **Agrawal N**, Naik SS. Experimental studies of the multi nozzle Ranque-Hilsch vortex tubes, 25th National & 3rd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTC), Dec 28 - 31, 2019, IIT Roorkee, India.
8. Date Abhijit, **N Agrawal**. Capillary tube flow characterization of a transcritical CO2 cycle using separated two-phase flow model, Int. Conference on Recent Advancement in Air Conditioning and Refrigeration, RAAR 2019, 28-30 November 2019, Bhubaneswar, India, Published in Lecture notes in Mechanical Engineering, Springer, ISBN 978-981-15-6360-7 (eBook), https://doi.org/10.1007/978-981-15-6360-7.
9. Abhijeet Mane, **N Agrawal**, Pravin jadhav, M. Thomre. Flow behaviour of capillary tube with transcritical N2O cycle, International Mechanical Engineering Congress, 29 – 1 Dec 2019, NIT Trichi.
10. Pravin Jadhav, **Agrawal N**, Ajit Mane Comparative Study of the Straight Capillary Tube for CO2 and R22 refrigerants, Proceedings of Int. Conference in Mechanical and Energy Technology ICMET 2019, Published by Springer Smart Innovation, systems and Technologies Book series, https://doi.org/10.1007/978-981-15-2647-3
11. Katam, G. B.Alur, V. B. Kotha, M. M .and **Warkhade G**. S,2019,The Performance and Emissions Investigations of Compression Ignition (CI) Engine Using Algal Biomass as an Antioxidant Additive in Coconut and Karanja Methyl Esters (SCI, Springer Link, IF: 0.821),Proceedings of the National Academy of Sciences, India Section A: Physical Sciences
12. Sonavane Gaurav; **Sargade V. G**.; Studies on Characterization and Machinability of Duplex Stainless Steel 2205 during Dry Turning; International Conference on Industrial, Mechanical and Manufacturing Science (ICIMMS 2019); 13 (5), pp. 349 – 353; 2019.

13. Avinash khadtare, **R S Pawade**, A Varghese, SS Joshi,2020,Micro-drilling of straight and inclined holes on thermal barrier coated Inconel 718 for turbine blade cooling (SCI, Taylor & Francis, IF: 3.046),Materials and Manufacturing Processes
14. Rahul A Gujar, **Hemant N Warhatkar**,2020,Estimation of mass apparent density and Young's modulus of femoral neck-head region,Journal of MedicalEngineering & Technology (Taylor & Francis)IF:1.03.
15. S Kadhane, **H Warhatkar**, 2019,Dynamic Stress-Strain Compressive Response of Soft Tissue using Polymeric Split Hopkinson Pressure Bar,International Journal of Innovative Technology and Exploring Engineering,IF:5.662
16. Somnath Hanumant Kadhane, **Hemant Warhatkar**,2020,High Strain Rate Tensile Response of Caprine Muscle Tissue using Polymeric Split Hopkinson Pressure Bar,SAE Technical Paper,IF:0.62
17. Somnath Hanumant Kadhane, **Hemant Warha**tkar,2020, Mechanical Response of Caprine Muscle under Compression at Varying Strain Rates test engineering and management,IF:0.427.
18. Chavan, Ajay; **Sargade, Vikas**,2020, Surface Integrity of AISI 52100 Steel during Hard Turning in Different Near-Dry Environments,Advances in Materials Science and Engineering,IF:1.726
19. Chavan, Ajay; **Sargade, Vikas**,2020, Evaluation of Surface Roughness and Tool Wear in Hardened AISI 52100 Steel Turning Under VT and MQL Machining Environment,International Journal of Mechanical and Production Engineering Research and Development,IF:0.47
20. Gaurav D Sonawane, **Vikas G Sargade**,2020,Machinability study of duplex stainless steel 2205 during dry turning,International Journal of Precision Engineering and Manufacturing,IF:5.671
21. PL Jadhav, **NA Agrawal**,2020,Influence of geometric and operating parameters on the flow behavior of the helical capillary tube Journal of Physics: Conference Series,IF:0.547.
22. Kishor Mane, **Neeraj Agrawal**,2020,Some Investigations of External Shading Devices on Thermal and Daylighting Performance of a Building,Advances in Energy Research, Vol. 1
23. Juned R Kazi, **Neeraj Agrawal**,2020, Experimental Investigation of Dehumidifier Hybrid Air Conditioner Integrated Zeotropic Refrigerant Blend R-407C Air Source Water Heat Pump,Renewable Energy and Climate Change.
24. Shrikant Thorat, Vinod Lonkar, Ashish Pailwan, **Vikas Sargade**, **Sadaiah Mudigonda**,2020,Effect of metallurgical parameters induced by manufacturing processes on photochemical machining of Co-Cr L605 alloy,Procedia CIRP,IF:2.4
25. Vishal Bhise and Anoop Nair Sujay Kekare, **B F Jogi**,2020,Aesthetic improvement of sheet molding compound (SMC) composite plate by using natural fiber reinforced polymer (NFRP) like jute fiber reinforced epoxy matrix composite coating,IOP Conf. Series: Materials Science and Engineering,IF:0.51.
26. Dhananjay S Satelkar, **Bhagwan F Jogi,** Shrikant B Thorat,2020,Effect of Different Activated Fluxes on Mechanical Properties of DSS 2205 in Pulsed Tungsten Inert Gas Welding,Advances in Additive Manufacturing and Joining.
27. **Dhanraj B. Waghmare**, Partha Saha,2020,Parametric optimization for autogenous butt laser welding of submillimeter thick SS 316 sheets using central composite design,Optics & Laser Technology,IF:3.816
28. **Dhanraj B. Waghmare**, Partha Saha,2019,Comparison of Single- and MultipleSpot Resistance Welding of Submillimeter Thick SS304 and SS316 Sheets,Advances in Additive Manufacturing and Joining

10. DEPARTMENT ANNUAL BUDGET

Sr. No.	Details	Amount (Rs.)
P. 1.1	Salaries and Wages Teaching	--
P. 1.2	Salaries and Wages Non-Teaching	--
P. 1.3	Ad-hoc Salary Teaching	--
P. 1.4	Ad-hoc Salary Non-Teaching	--
P. 1.5	Daily Wages Salary	--
P. 1.6	Machinery & Equipment UG	104362/-
P. 1.7	Machinery & Equipment PG	49,428/-
P. 1.10	Laboratory Expenditure(recurring)	4,99,178/-
P. 1.11	TA/DA	6,384/-
P. 1.12	Medical/LTC	--
P. 1.14	Conferences & Seminars	63,387/-
P. 1.15	Office Expenses	6,465/-
P. 1.16	Departmental Students' Activities	27,500/-

11. LABORATORIES

11.1 Major Facilities/Equipments/ 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	Carbon Dioxide Heat Pump test Rig	01	19,096.87/-

20	Fluid Mechanics Test Bench	02	2,95,510/-
21	SAJ make Eddy current dynamometer	01	1,12,760/-
22	Constant temperature oil bath with ms powder stand	01	68,000/-
23	Metzer - m Trinolar Research metallurgical microscope	01	1,24,110/-
24	Microhardness Tester Shimadzu make	01	1,602300 yen
25	Measuring microscope	01	404468 yen
26	Automatic Specimen mounting press Bain mount	01	1,18,390/-
27	Slip Gauge Accessories	1 set	1,58,207/-
28	Digital Venturis 466 as Nodes	04	3,62,660/-
29	2KVA CVT Elect.	01	95,250/-
30	Rank Tailor Hobson Surface Roughness Testing Instrument Surtronic 3+(Battery Operated Printer)	01	1,90,179/-
31	Gear Rolling Tester	01	96,286/-
32	Baker Dot Matrix 24 column print Module "PM" suitable for ED1/EC10	01	10,400/-
33	Monochromatic Light Source	01	52,312/-
34	Refrigeration Test Rig	01	75,240/-
35	Pyrometer	01	1,44,000/-
36	Pyranometer	01	1,84,653/-
37	Vibration Laboratory	01	86,130/-
38	Cam Analysis Apparatus	01	37,125/-
39	Journal Bearing Apparatus	01	66,037/-
40	Coriolis Acceleration Apparatus	01	79,531/-
41	Lab View Software	01	1,41,614/-

42	CRIO-9025	01	3,15,188/-
43	CRIO-9118	01	2,94,228/-
44	NI 9234	01	2,43,661/-
45	NI 92194	01	72,181/-
46	12" Industrial Panel	01	72,181/-
47	PS-2 Power supply for field point	01	1,68,074/-
48	CDAR 9174 Compact	01	83,250/-
49	Stat graphics centurion professional xv -01 box with CD and Manual	02	62,450/-
50	Metallurgical sample saw	01	1,23,750/-
51	Wear and Frication monitor	01	3,93,750/-
52	Refrigeration test ring	01	84645/-
53	Fluid mechanics test bench 02	01	2,95,510/-
54	Signal cylinder Two stoke petrol engine test ring.	01	87,912/-
55	Fluid mechanics test bench 01	01	1,85,364/-
56	Heat transfer in Forced Convocation	01	59,061/-
57	Wire Electrical Discharge Machine- ECOCUT- Electronica	01	2509000/-
58	Constant temperature oil bath with ms powder stand	01	68000/-
59	Inverter 600 VA luminous make	01	10940/-
60	Electromagnetic Flow Meter	01	23388/-
61	Magnetic dial stand	01	6750/-
62	Monochromatic Light Source	01	45562/-
63	Mounting Arrangement	01	6325/-

64	Erichsen cupping tester	01	41468/-
65	CNC Simulators for offline programming (HASS USA Make, Model: CSMD)	06	999000/-
66	High Speed Camera	01	2298339/-

11.2 Laboratory Expenditure

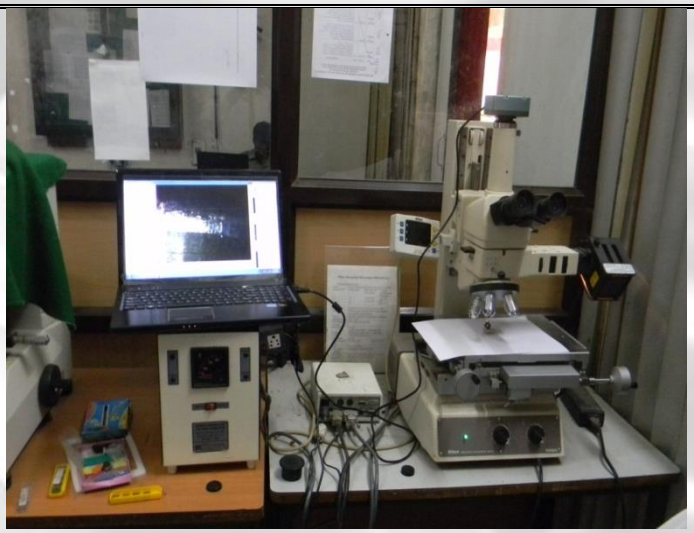
Sr. No.	Name of the Laboratory	Total cost Laboratory
1	Refrigeration and Air Conditioning Lab	24292/-
2	Fluid Mechanics and Fluid Machinery Lab	--
4	Renewable Energy Lab	--
5	I.C. Engine	30760/-
6	Thermal Engineering Lab	--
7	Material Science / Engineering Metallurgy Lab	335029/-
8	Material Testing Lab (SOM)	--
9	Photochemical Machining Lab (PCM)	26173/-
10	Theory of Machines And Machine Dynamics Lab/ Engineering Mechanics Lab	--
12	Metrology and Quality Control Lab	--
13	CAD / CAM Lab	
14	Center for Advanced Machining Technology (CAMT)	73117/-

SOME MAJOR INSTRUMENTS IN THE LABORATORIES

IC Engine

CNC Machine

CASCADE Refrigeration System



Micro Hardness Tester

12. PROJECTS

12.1 List of Undergraduate Projects

Sr. No.	Title of the Project	Advising Faculty
1	Solid Fertilizer Sprayer Machine With Added Compressor And Solar Plate	Dr H.N.Warhatkar
2	Experimental investigation of wire movement and its effect on kerf width and cutting rate in WEDM process	S R Dhale
3	Study on Compost Generation from Food Waste and Fabrication of Shredder Machine	
4	Bi-cycle Shearing System	Dr.R.S.Pawade
5	An Intregrated Smart Motor Bike Helmet: Rain Water Cleaning And Cooling	Dr.Neeraj Agarwal
6	Waste Heat Recovery from Hot Deep Galvanizing Plant	Anand Chapekar & Dr M.S.Tandale
7	Modification of Portable Water Cooler for Improved Performance	Dr. M.S.Tandale
8	Modification of Split AC for obtaining Three Simultaneous Utilities	
9	Carpet Drawing Machine	Dr.G.S.Warkhade
10	Modification In Stair Walker	Dr. D. B. Waghmare.
11	Comparative study in machining of AISI 4140 using Multi-objective Optimization Technique	Dr.R.P.Kate/Dr. R S Pawade
12	Multiobjective optimization in Wire Electrical Discharge Machine Turning using TOPSIS	Dr.R.S.Pawade
13	Multiobjective optimization using GRA in Milling of Inconel 781	
14	Experimental Study on effects of Helix Angle on surface Roughness, Torque and Bending Moment in Dry and Cryogenic End Milling of Duplex Stainless Steel SS310 and SS316L	Dr. Sadaiah Mudigonda
15	A Comparative Study on Photochemical Machining of SS310 and SS316L	
16	Incremental sheet forming	Mr. P. D. Agawne

12.2 List of TPCS Projects

Sr. No.	Title of the Project	Advising Faculty
1	Hand Operated Seed Sowing Tool	Dr. M. Sadaiah
2	Design of Biogas System Using Waste Food from Hostel	Dr. M. S. Tandale
3	Automatic motorised weed removal machine	Dr. R. S. Pawade

4	Design of Natural Refrigerator	
5	Study of Tri-wheeler	Dr. H. N. Warhatkar
6	Automated Drainage Cleaner	
7	Smart Comb	Dr. Neeraj Agrawal
8	Drumstick cutter	Dr. B. F. Jogi
9	Stick for Blind Person	Dr. G S Warkhade
10	Staire walker frame for disabled person	Dr. D. B. Waghmare
11	Fabrication & Analysis of Mini Spot Welding Machine	Prof. S. R. Dhale
12	Striling Engine	Mr. Prashant Agawane
13	Concept & Design Of Power Generated Fore-Arm Machine	Mr. Ashish Mahajan

12.3 List of Post Graduate Projects

Sr. No.	Name of the Project	Advising Faculty
1	Parametric Study and Multi-Objective Optimization of Data Center with Automated RANS Analysis	GSW/HNW
2	Aero-acoustics analysis of a simplified HVAC duct using Computational Fluid Dynamics	GSW/HNW
3	Numerical modeling and simulation of laser welding of sub-millimeter thick 316 stainless steel	Dr. D. B. Waghmare
4	Test Rig Design for Measuring HEPA Filter Flow-Pressure Drop Characteristics	Anand C
5	Design and Development of Heat Exchangers for Reciprocating Compressor	Anand C

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_2Transcritical 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
29	Ninad Girish Mahadeshwar	RS20190102	HVAC&R	Dr. N. Agrawal
30	Deshmukh Shahaji Prakashrao	RS20190103	Manufacturing	Dr. V.G.Sargade
31	Yogiraj Basavraj Dama	RS20190104	3D implant design	Dr. B. F. Jogi
32	Rajwade Mahesh Madhusudan	RS20190107	Manufacturing	Dr. V.G.Sargade
33	Agwane Prashant Dattu	RS20190108	Evaluation of 3D printing strategies for strength and material optimization	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	--	Industrial Project of B.Tech Students in Valmont Structures, A/P Loni Devkar, Indapur MIDC, Pune	Dr. M. S. Tandale
2	Lakhan Bondage	Parametric Study and Multi-Objective Optimization of Data Center with Automated RANS Analysis	GSW/HNW
3	Vaibhav Anant Bandal	Aero-acoustics analysis of a simplified HVAC duct using Computational Fluid Dynamics	GSW/HNW
4	Susmita Ghorpade	Test Rig Design for Measuring HEPA Filter Flow-Pressure Drop Characteristics	Anand C
5	Sushant Patil	Design and Development of Heat Exchangers for Reciprocating Compressor	Anand C

13.2 Industry Institute Interaction by Faculty

Sr. No.	Name of the Faculty	Name of the Industry and Interaction for
1	Dr.M. S. Tandle	Consultancy project for MNGL Pune
2	Dr. R. S. Pawade	SAE
3	Dr. B. F. Jogi	Mahindra Composites, Pune, DRDO, Mumbai

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

Sr. No.	Name of Industry/Exhibition	Place	Visit by
1	Two Biogas Plant	Sangamner	Faculty and UG/PG students
2	Biogasifier Unit	Mangaon	Faculty and UG/PG 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	Project Based Learning for Academic Excellence Kolhapur	9-13 June 2020	Dr. M.S. Tandale
2	Participated in Development Dialogue 2020 conference	Feb 2020	Dr. M.S. Tandale
3	Acoustics Engineering - An Effective Use of Sounds & Vibrations	27 - 29 May 2020	Dr. N. Agarwal
4	Attended SVNIT Surat and AICTE Training and Learning (ATAL) Academy sponsored online faculty development program on Welding Technology.	18-22 May 2020	Dr. B. F. Jogi
5	Attended a webinar organized by IEEE STANDARDS ASSOCIATION& MHRD PMMMNMTT FDC, Shivaji University, Kolhapur on "IEEE 802.11 and Building Wireless Community Networks",	22 May 2020	Dr. B. F. Jogi
6	Participated in the IIC Online Sessions conducted by Institution's Innovation Council (IIC) of MHRD's Innovation Cell, New Delhi to promote Innovation, IPR, Entrepreneurship, and Start-ups among HEIs. Total no of sessions attended: 17, Certificate no : 7060 organized by Dr. Abhay Jere and Shri. Dipan Sahu.	28th April to 22nd May 2020	Dr. B. F. Jogi
7	Participated in the online Webinar on "Intellectual Property Rights: Engineer's Perspective" organized by Department of Computer Science and Engineering. Deogiri	July 27, 2020	Dr. B. F. Jogi
8	AICTE Training And Learning (ATAL) Academy, Vadodara FDP on "Blockchain" at Dr. Babasaheb Ambedkar Technological University, Lonere.	20-10- 2019 to 24-10-2019	Dr. B. F. Jogi
9	AICTE Training And Learning (ATAL) Academy, Vadodara FDP on "Artificial Intelligence" at Dr. Babasaheb Ambedkar Technological University, Lonere.	02-12-2019 to 06-12-2019	Dr. B. F. Jogi
10	Pedagogical and Assessment Techniques for Product Design Engineering	February 25 - March 6, 2019	Dr. D B Waghmare
11	Integrated approach towards Water Processing and Management TEQIP - III	15-19 October, 2019	Dr. D B Waghmare
12	Research Methodology -Techniques and Softwares AICTE & TEQIP - III	November 11-15, 2019	Dr. D B Waghmare
13	Cyber Security	6-10 Jan 2020	Dr. D B Waghmare
14	Art of Living's 3-day residential Executive Leadership Program at Bangalore , organized by DBATU Maharashtra at Art of Living International Center, Bangalore (https://maps.app.goo.gl/4XLuX).	27-29 February, 2020	Dr. B. F. Jogi

14.2 Expert Lecture by Faculty Members

Sr. No.	Name of the Event	Faculty delivering the Lecture
1	Research Paper: Preparation, Submission & Review, AICTE TEQIP III FDP on Research Methodology Techniques and Software 11-15 Nov 2019	Dr. N. Agarwal
2	Energy Scenario-National and International' in Three days workshop on Energy Conservation and Audit at Sharad Institute of Technology College of Engineering, Yadrav, Ichalkaranji on 30 Sept. 2019	Dr. R. S. Pawade
3	Water Pollution' in Three days students workshop on Water Management at Rajiv Gandhi College of Engineering, Research and Technology, Chandrapur on 28 January 2020	Dr. R. S. Pawade
4	NBA Process, Committees, Activity and SAR' in One week FDP on Outcome Based Education and NBA at KBP COE, Satara on 14 February 2020.	Dr. R. S. Pawade
5	On “Graphing software” for research in AICTE FDP on November 14, 2019	Dr. G. S. Warkhade
6	On” Optimization Techniques for engine parameters”, in AICTE FDP on November 14, 2019	Dr. G. S. Warkhade
7	Introduction to Central Composite Design	Dr. D. B. Waghmare
8	Central Composite Design - Case Study of Laser Welding	Dr. D. B. Waghmare
9	Introduction to Design Expert Software	Dr. D. B. Waghmare
10	Laser Welding – An Important Unconventional Manufacturing Process for Industry 4.0	Dr. D. B. Waghmare

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	63	15	18
2	Dr. R. S. Pawade	213	16	24
3	Dr. M. Sadaiah	121	12	18
4	Dr. M. S. Tandale	230	8	8

5	Dr. B. F. Jogi	236	7	6
6	Dr. G. S. Warkhade	55	4	3
7	Dr. D B Waghmare	4	1	1

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

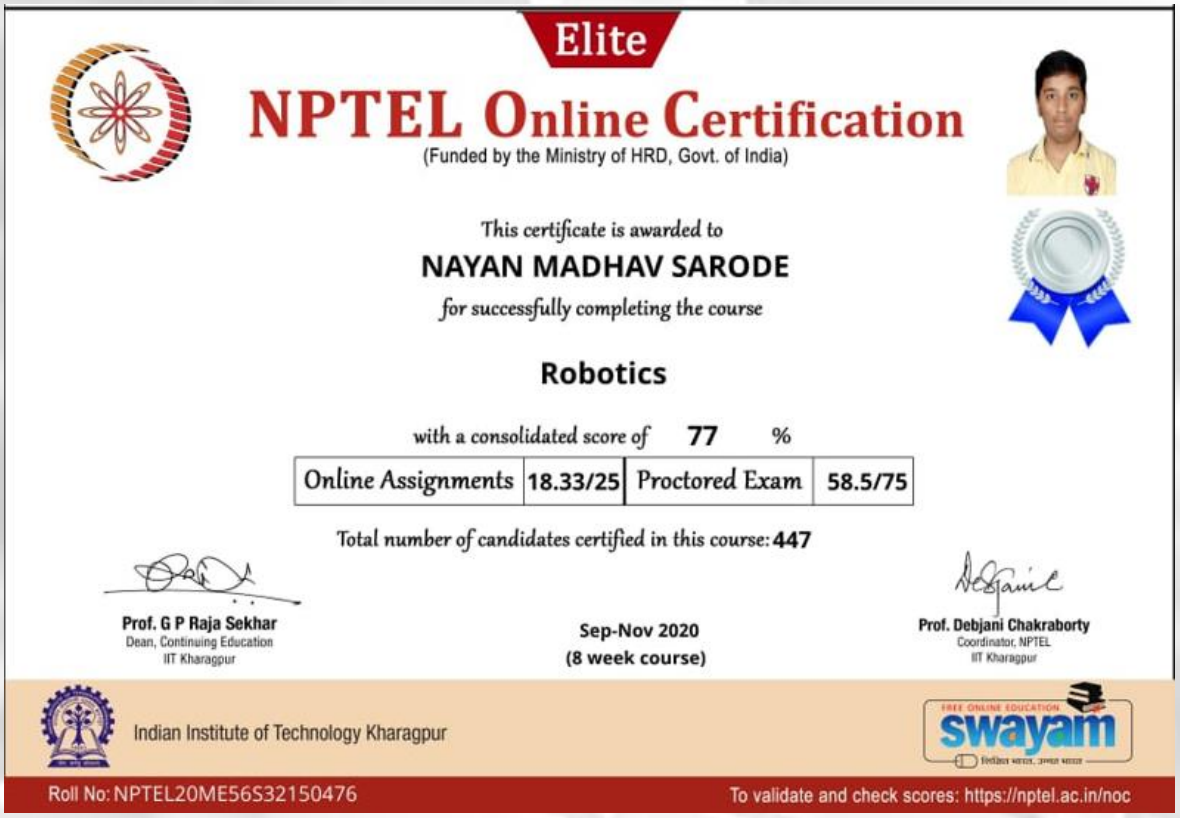
- Ms Parasmita Biswas and Mr Sachin Khot got the **first runner up prizefor TPP competition**.
- Mr Vivek Mohite, Mr Vitthal Gadekar and Mr Vijay Chaughule secured the position of **second runner-up for TPP competition**.
- Mr Sachin Pawar and Mr Amey Mahamani were able to secure the **second runner-up prize for Problem Solver**.
- Mr Akshay Ambekar, Mr Sachin Mandavde and Mr. Prashant Bhalerao also secured the second runner- up for the **Mad Ads.**
- Mr Shivam Kadukar second runner up prize for **Actrivia.**

15.3.2 Student's Accolades

- **Mr. Sanket S kumbhar** had secured First prize on his innovation Full Face Foldable Helmet in the ANVESHAN 2019-20 ogannized by Association of Indian University at National level at RGPV Bhopal during Dec 15-16 2020.
- Mr. Nayan Madhav Sarode, a student of 3rd year Mechanical Engg. University Department awarded A grade for his strong effort and performance as a Robotic Process Automation Developer intern at GIANT Robot Ltd London, England"
- B.F. Jogi, Sujay Kekare, **Vishal Bhise**, Anoop Nair, Aesthetic Improvement of Sheet Molding Compound (SMC) Composite Plate by using Natural Fibre Reinforced Polymer (NFRP) like Jute Fiber Reinforced Epoxy Matrix Composite Coating, International Conference on Emerging Trends in Manufacturing, Engines and Modelling, ICEMEM2019, during Dec 23-24, 2019, pp 72, at Department of Mechanical Engineeing, Mukesh Patel School of Engineering and Technology Management, SVKM's NMIMS, Shirpur, Received BestPaperAward.

15.3.3 NPTEL Online course

- For NPTEL Online course "Robotics", Nayan Madhav sarode scored 77%.



15.3.4 GATE Scores (GATE 2020)

Following students have a qualified GATE 2020 score from the department of mechanical engineering during academic year 2019-20

Sr. No.	Name of Student	Registration No.	GATE 2020 Score
1	Ram S. Kadam	20160132	38.81

16. DEPARTMENTAL ACTIVITIES BY FACULTY AND STUDENTS

16.1 ISHRAE Chapter 2019-20

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 2019-20 is given below.

Sr. No.	Name of Member	Year	Position
1	Vivek Mohite	4th	President
2	Bhagyashree Chinchankar	4th	Secretary
3	Govind Kulkarni	3rd	Treasurer
4	Parasmita Biswas	4th	Active Member
5	Sachin Khot	3rd	Active Member
6	Shivkanya Waghmare	3rd	Active Member
7	Nitin Mail	3rd	Active Member
8	Akshay Ambekar	3rd	Active Member
9	Sanket Zade	3rd	Active Member
10	Gaurav Mhasalkar	2nd	Active Member
11	Shivam Kadukar	2nd	Active Member
12	Mugdha Durge	2nd	Active Member

In total of 70 members, 22 were from UG 4th year, 35 were from UG 3rd year, 12 from UG 2nd year and 1 from PG course.

Some of the activities conducted by ISHRAE Dr.BATU local chapter during the academic year 2019-20 were as follows:

1. Smart Energy Software
2. JAMBOREE 7
3. JAMBOREE 7 presents Problem Solver
4. K-12 Activity

ISHRAE LOCAL CHAPTER 2019-20
Workshop On Smart Energy Software

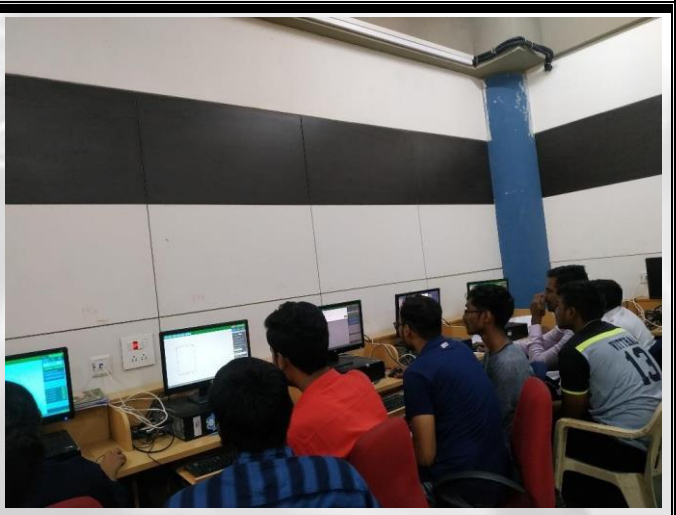
Final presentation round

TPP Prize Distribution

Potential winners of DBATU

Potential winners of DBATU

Potential winners of DBATU



Workshop On Smart Energy

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.