



PANDIT DEENDAYAL PETROLEUM UNIVERSITY



NEWSLETTER

September 2019



School of Technology Department of Mechanical Engineering

FACULTY ZONE

- ⇒ Publications
- ⇒ Conference/ Workshop Attended
- ⇒ Professional Activities
- ⇒ Administrative Assignments
- ⇒ Recognition
- ⇒ Events/Workshop Organized
- ⇒ Guest Lectures
- ⇒ New Joining

STAFF ZONE

- ⇒ Workshop/Conference Attended
- ⇒ Training/Installation of Major Equipment

STUDENT ZONE

- ⇒ Publications
- ⇒ Conference Attended
- ⇒ Recognitions

Editorial Team

Faculty Coordinator: Dr. Pankaj Sahlot

Staff Coordinator: Mrs. Pooja Nimavat



DIRECTOR'S DESK...

Prof. Sunil Khanna

Dear Colleagues and Students:

Industry 4.0 (the fourth Industrial Revolution) encapsulates the future development trends to achieve more intelligent manufacturing. As we @ PDPU embark on this journey to towards Industry 4.0, I am Happy to Introduce the next issue of the Newsletter which not only share with all its readers the latest news and developments in the Department of Mechanical Engineering but would also be sensitizing all of us on the latest trends and developments in the Fourth Industrial Revolution.

The limitless power of technology to do good and the conviction of my faculty colleagues and students that the golden age is ahead of us - and not behind us – brings about the best in all of us which is reflected in their achievements.

Compliments to the editorial team for their passion for perfection and unbound creativity which makes me always look forward to the next edition of the Newsletter.

HEAD OF THE DEPARTMENT'S DESK ...



Prof. Vishvesh Badheka

It gives me immense pleasure to share Newsletter of the Mechanical Engineering Department, September 2019. Mechanical Engineering Department. is the most happening Department of the School of Technology. Newsletter gives an overview of the activities carried out by students, staff and faculties during the month. You may please share your feedback, comments & suggestions to the coordinators.



FACULTY

PUBLICATIONS

JOURNALS

Dr. Rakesh Chaudhari, Dr Jay Vora, Dr Kush Mehta, Dr Nirav Patel, Dr Vivek V Patel and Mr Ojas Satbhai have published following during the month of September 2019:

- ◆ **Chaudhari Rakesh, Jay J. Vora**, SS Mani Prabu, I. A. Palani, Vivek K. Patel, and D. M. Parikh. "Pareto optimization of WEDM process parameters for machining a NiTi shape memory alloy using a combined approach of RSM and heat transfer search algorithm." *Advances in Manufacturing*: 1-17 (2019)
- ◆ **Mehta, K P.**, Patel, R., On FSW Keyhole Removal to Improve Volume Defect Using Pin Less Tool, *Key Engineering Materials* 2019, 821, 215-221. <https://doi.org/10.4028/www.scientific.net/KEM.821.215> (2019)
- ◆ **Patel, N P.**, Parlikar, P., Dhari, R S., **Mehta, K.**, Pandya, M., Numerical modelling on cooling assisted friction stir welding of dissimilar Al-Cu joint, *Journal of Manufacturing Processes* 2019, 47, 98-109. doi: <https://doi.org/10.1016/j.jmapro.2019.09.020> (2019)
- ◆ Vyas, H., **Mehta, K P.**, Effect of Multi Pass Friction Stir Processing on Surface Modification and Properties of Aluminum Alloy 6061, *Key Engineering Materials* 2019, 813, 404-410. doi: <https://doi.org/10.4028/www.scientific.net/KEM.813.404> (2019)
- ◆ Q. Wen, W. Li, **V. Patel**, Y. Gao, A. Vairis, Investigation on the Effects of Welding Speed on Bobbin Tool Friction Stir Welding of 2219 Aluminium Alloy. *Metals and Materials International*.(2019)
- ◆ **Ojas Satbhai**, Subhransu Roy, Sudipto Ghosh, Suman Chakraborty, Rajaram Lakkaraju, "Comparison of the quasi-steady-state heat transport in phase-change and classical Rayleigh-Bénard convection for a wide range of Stefan number and Rayleigh number" , *Physics of Fluids* 31 096605- (2019)



FACULTY

CONFERENCE/WORKSHOP ATTENDED

Dr, Anurag Mudgal, Mr Rakesh Chaudhari, Mr Rahul Deharkar, Mr Abhinaya Srinivas, Prof. Vishvesh Badheka and Dr Pankaj Sahlot attended the following meeting/workshop during the month of September 2019:

- ◆ **Dr Anurag Mudgal** attended INDIA-H2O consortium meeting at Delft, The Netherland from 17th - 19th September 2019
- ◆ **Mr. Rakesh Chaudhari, Mr. Rahul Deharkar and Mr. Abhinaya Srinivas** attended the Augmenting Writing Skills for Articulating Research (AWSAR) Workshop on "Popular Science Writing" for PhD scholars and Post Doc Fellows held on 23rd September 2019 at Institute of seismological Research (ISR)



INDIA-H2O consortium



FACULTY

CONFERENCE/WORKSHOP ATTENDED

- ◆ **Prof. Vishvesh Badheka** attended session on 'Role of Engineers in New India' delivered by Dr. Narottam Sahoo (Advisor, GUJCOST, DST-GUJARAT) on occasion of Engineers Day Celebration on 16th September 2019 at PDPU.
- ◆ **Prof. Vishvesh Badheka** attended 10th Pandit Deendayal Memorial Lecture-2019 on 25th September 2019 by Shri Ram Madhav on 'Kashmir : socio-economic & political perspective' .
- ◆ **Dr. Pankaj Sahlot** attended International Conference and exhibition on 'Additive Manufacturing Technologies - AM 2019 from 6th -7th September 2019 at Bangalore.
- ◆ **Dr. Pankaj Sahlot** attended Global Initiative of Academic Networks (GIAN) course on Microstructural Evolution during Friction Stir Processing from 16th -21st September 2019 at IIT Gandhinagar.



Global Initiative of Academic Networks (GIAN) course on Microstructural Evolution during Friction Stir Processing



International Conference and exhibition on 'Additive Manufacturing Technologies - AM 2019



FACULTY

PROFESSIONAL ACTIVITIES

- ◆ **Mr Anurag Mudgal** visited Anand Agriculture University to discuss project proposal collaboration to submit it to GUJCOST and other funding agencies
- ◆ **Prof. Vishvesh Badheka** arranged the following visits during the month of September 2019 :
 - ⇒ Visit of Under Graduated and PhD students of IITRAM for Wear Testing Facility on 20th September 2019.
 - ⇒ Visit of Under Graduated students and faculties from Gokul University for technical interaction followed by visit to Welding Research Lab on 16th September 2019.



Gokul University Faculty & Students

- ◆ **Prof. Vishvesh Badheka** went for the following visits during the month of September 2019 :
 - ⇒ TCR and M/s Fusion resources, Vadodara on 19th September 2019 regarding ongoing testing of samples
 - ⇒ M/s Steel Cast, Bhavnagar on 28th September 2019 for exploring possibility of collaboration in the area of casting and CP projects.
 - ⇒ **Dr Pavan Kumar G** conducted the following Doctoral Committee Meeting in presence of External: Prof. K. M. Patel on 23rd September 2019
 - ⇒ 4th DC meeting for **Mr. Achyut Trivedi**
 - ⇒ 2nd DC cum Comprehensive for **Ms. Chitrlekha**

FACULTY

ADMINISTRATIVE ASSIGNMENTS

- ◆ Department of Mechanical Engineering coordinated visit of NBA team during 14-15th September 2019.



NBA Team Visit

- ◆ Department of Mechanical Engineering conducted NBA- Knowledge transfer workshop for SPT and SOT during 23rd - 30th September 2019



Day 1 :
Overview & Criteria 1-2



Day 2 :
Criteria 4



Day 3 :
Criteria 5



Day 4:
Criteria 6,9& 10



Day 5:
Criteria 3&7

FACULTY

ADMINISTRATIVE ASSIGNMENTS

- ◆ **Department of Mechanical Engineering** faculty members visited International Automobile Centre of Excellence (iACE) on 23rd September 2019



iACE Visit

- ◆ **Department of Mechanical Engineering** conducted meeting with M.Tech I & II (Thermal/Design/Manufacturing) year students on 30th September 2019



M.Tech Student Interaction Meeting



FACULTY

RECOGNITION



Dr Kush Mehta was honored with Young Welding Engineer Male Award 2019 by WeldFabTech Times held at Hotel Sahara star, Mumbai on 14th September, wherein companies such as L&T, Godrej Aerospace, Fronius, InoxCva, Bohler, etc. were also awarded in different categories. Also, it is a matter of proud to inform that, PDPU was the only academic institute among all organizations to receive such award.

Dr. Kush Mehta has joined Aalto University, Espoo, Finland as a Postdoctoral Researcher .

Mr. Vipindas K. defended PhD titled “Modelling and experimental investigation of the micro-end milling process for Ti-6Al-4V alloy” at NIT Calicut on 17th September 2019”

Dr Vivek V Patel was honoured with Top Peer Reviewer 2019 in the Global Peer Review Awards in the area of Materials Science and Cross-field by Web of Science. He received two honouring awards for the elite contributions to scholarly peer reviewed and editorial pursuits internationally on 7th September 2019.





FACULTY

CONSULTANCY WORK

Dr Ravi Kant has acquired consultancy project titled “ Pilot project regarding 11KV electrical line aerial survey through drone and detect maintenance needs” amounting to Rs 18,000/- funded by Gujarat Power Research & Development Cell (Govt. of Gujarat initiative under GUVNL) for a period of 2 months from 11th September 2019.



FACULTY

EVENTS/WORKSHOP ORGANIZED

- ◆ **Dr Rajesh Patel** organized One Day Workshop dated 7th September 2019 on "Start Unknown and Finish Unforgettable" for B. Tech. Mechanical Final year students and all M. Tech. students. Mr. Anand Bhatnagar, VP (HR), Reliance Industries Ltd. has conducted workshop to create awareness in the students about the skill set required by industries, self-assessment and how to bridge the gap.



One Day Workshop on "Start Unknown and Finish Unforgettable"

Prof. Vishvesh Badheka organized the following events under IIW-PDPU Student Chapter Activities

- ◆ Expert talk on 'Structure-property-correlation of FSW welds' delivered by Dr Gourav Rao, Scientist C, Naval Metallurgy Division, DRDO, Pune, on 20th September 2019, followed by Welding Research Lab visit.
- ◆ **Mr Krunal Mehta & Prof Vishvesh Badheka** coordinated Wear and Wear Testing workshop conducted for PDPU M.Tech Manufacturing students on 30th September 2019.



Expert talk on 'Structure-property-correlation of FSW welds'



Wear and Wear Testing workshop



FACULTY

GUEST LECTURES—OUTSIDE PDPU

- ◆ **Prof. S S Kachhwaha** delivered an invited Talk titled “**Biofuel to Meet the Increasing Energy Needs of the Country**” for One-day workshop on “Technological Advancement in the field of renewable Energy” organized by GERMI on 19th September 2019 .
- ◆ **Prof. Vishvesh Badheka** delivered lecture on “Crystal Defects and Strengthening mechanism” for UG students at Production Engineering Dept, BVM college of Engineering, V V Nagar, on 7th September 2019
- ◆ **Prof. Vishvesh Badheka** delivered lecture on “Surface composite manufacturing via FSP route”, during one-day seminar on "Challenges and Research Opportunities in Composite materials” at Materials and Metallurgical Engineering, ITE, Indus University on 24th September, 2019



FACULTY

NEW JOINING



Prof. Ramesh Guduru has completed BS, MS and PhD with specialization in Materials Science and Engineering. He has joined Department of Mechanical Engineering as an Associate Professor on 5th September 2019. His areas of interest are Nanomaterials, Electrochemistry – Energy Storage and Corrosion, Sensors, Additive Manufacturing - Thermal Spray Coatings, Lasers based Additive Manufacturing, 3D printing), Failure Analysis of Materials, Mechanical Behavior of Materials. Prof. Guduru holds 4 international patents and contributed 2 book chapters. He has published more than 70 articles in the international peer-reviewed journals and conference presentations/proceedings.

He has been serving on editorial and review panel boards for different journals (Met. and Mat. Trans. A, B and E) and research funding agencies – NSF (USA), QNRF (QATAR), Skolkovo Foundation (RUSSIA), and SNF (Switzerland). He has received the awards namely Larry Norwood Endowed Faculty Fellow (USA), Presidential Faculty Fellow (USA), NRC Fellow (USA), Member of honorary societies: Alpha-Kappa-Phi and Alpha-Sigma-Mu (USA), ORS Award (UK), Thmoason Memorial Medal (IIT Roorkee), University Gold Medal (IIT Roorkee)



WORKSHOP/CONFERENCE

Mehulkumar J. Bhalu & Piyushkumar R. Chaudhari & Umang Soni attended Two day Staff Development Program organised by HR Department titled “Team Building and Leadership” on 20th & 21st September, 2019



Mr Ramkrushna Panchal visited Automation Expo- 2019, an International Exhibition on 27th & 28th September 2019 at Mumbai Exhibition Centre having participation from manufacturers of Automation Machines , raw materials and related parts from all over the world. The exhibition included wide range of robots and new technology regarding Automation and behind the mass production to save the time and Money. The experience can be helpful in guiding students for materials selection, vendor of materials, easy process for machining and cost cutting for the projects.



TRAINING/INSTALLATION OF MAJOR EQUIPMENT

- ◆ Two set-up namely **CASCADE Refrigerator Test Rig** and **Vortex Tube Refrigerator Test Rig** were successfully installed on 25th September 2019 at Refrigeration and Air-conditioning Laboratory under the guidance of **Dr. Vivek K. Patel** in presence of **Mr Mehulkumar J Bhalu**.
- ◆ **Sequential Reactor** was installed on 05th September 2019 at Centre for Bio-fuel & Bio-energy studies (C.B.B.S) Lab in presence of **Mr. Trushar Prajapati**
- ◆ A small scale wind turbine with **Data Logger** is procured under ORSP project by Dr. Nagababu Garlapati from SUPERNOVA and was installed on 19th September 2019 at terrace E Block, PDPU with help of Mr Trushar Prajapati.
- ◆ **Mr Trushar Prajapati and Dr Vinay Vakharia** attended training on 30th September 2019 for misalignment diagnosis for Machinery Fault Simulator.



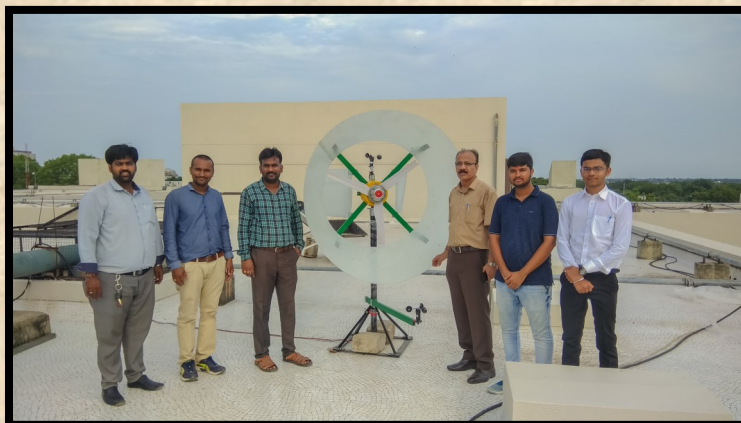
CASCADE Refrigerator Test Rig



Vortex Tube Refrigerator Test Rig



Sequential Reactor



Wind Turbine with Data Logger



Machinery Fault Simulator

STUDENTS PUBLICATIONS

Swati Srivastava, Pratyush Srivasatava, Rajnish Kumar under the guidance of Mr Rahul Deharkar presented a paper on “Localized positioning system for Visually impaired inhabitants (LOPS-VI) ” during S cube : Students’ Special Symposium which was a part of ISSE National Conference (INAC-4) organized by ISSE (Indian Society of Systems for Science and Engineering) and ISRO at Space Applications Centre (SAC) dated 27th September 2019.



Urjit Patel under the guidance of Mr Krunal Mehta presented “Integrated Solutions for Self-Charging Electric Vehicle” during S cube :Students’ Special Symposium which was a part of ISSE National Conference (INAC-4) organized by ISSE (Indian Society of Systems for Science and Engineering) and ISRO at Space Applications Centre (SAC) dated 27th September 2019.



STUDENTS PUBLICATIONS

Mr Darshan Solanki and Mr Jaynish Idhariya (M.Tech Manufacturing) attended and presented the following papers at “**Behind the Teacher’s Desk**” held at CSIR-National Metallurgical laboratory (NML), Jamshedpur during 5th & 6th September, 2019, organised by IIM Jamshedpur and Tata Steel.

- ⇒ Experimental investigation on weld morphology of activated TIG welded bead-on-plate weldments of Duplex Stainless Steel (2205) using oxide fluxes, **Darshan Solanki, Jaynish Idhariya, Prof. Vishvesh J. Badheka** and Dr. Purvesh K. Nanavati
- ⇒ Experimental Studies on Rotational Friction Welding on Mild Steel using Lathe Machine; **Darshan Solanki, Jaynish Idhariya, Prof. Vishvesh J. Badheka** and Dr. Purvesh K. Nanavati

