



P D P U
ISO 9001:2008

P A N D I T
D E E N D A Y A L
P E T R O L E U M
U N I V E R S I T Y

SOT MIRROR

ISSUE 8 | FEBRUARY 2017





CONTENTS

| | |
|--------------------------------|--|
| Message of Director.....3 | Mechanical Engineering12 |
| Electric Engineering.....4 | Solar Energy.....14 |
| Industrial Engineering 5 | Placement Activities.....15 |
| Civil Engineering.....8 | FACULTY ADVISOR: DR. MANOJ KUMAR |
| Chemical Engineering.....9 | STUDENT COORDINATORS AKSHITA BORA (ELECTRICAL '15) RICH A MISTRY (ELECTRICAL '15) DHRUV DEVAGIRI (ELECTRICAL '15) |

Contact :
Pundit Deendayal Petroleum University
Raisan Village, District – Gandhinagar.
Pin code - 382 007.

Gujarat, INDIA
Phone: +91 79 23275060
Fax: +91 79 23275030
Email: info@pdpu.ac.in



Dr. H. B. Raghavendra,
Director, SOT, PDPU

MESSAGE FROM THE DIRECTOR

The onus of creating a world class educational institution is challenging and embellished with a host of initiatives which validate them over an extended time span. We focused on the energy domain a few years ago and worked to create a talent pool to meet the human capital needs of the sector. The university today has metamorphosed into a preeminent institution with significant national and international visibility. It was only natural

to give PDPU the look and feel of a more complete academic environment and we have done that with the introduction of the School of Technology and the School of Liberal studies in recent years. Each one of these schools along with the Department of Nuclear Energy, Department of Solar Energy and the School of Petroleum Management bring a lot of academic credibility to a research led environment.

Today the corporate world seeks a generation of young people who are not only enlightened, but also trained to think innovatively. They are expected to meet tough challenges and create opportunities in uncharted areas with unprecedented success. They soon settle in an advanced academic ecosystem which abets an innovative approach to the evolving challenges of the academic world. They will be required to acquire diverse skills and competencies, and take the extra step to understand the parameters of leading a dignified quality of life and seek to achieve the same through intellectual self-propelled pursuits.

I am sure that with our collective vision we will achieve the enshrined goals through dynamic, participative and scholarly academic inputs duly complemented by collaborative deployment of professionals of high repute and caliber. The university has to serve as a cradle of innovation and research to facilitate this.

Once again, I extend my best wishes to the all the stakeholders of the university.

Dr. H.B. Raghavendra

Director, SOT, PDPU

Department of Electrical Engineering

IEEE Students Membership Draw

The IEEE student membership drive program was held from 11th November, 16 to 26th November, 16 for students of Electrical, Computer science and Information & Communication Technology and other engineering departments of all the semesters. Interested students are supposed to pay the membership fees to start or renew the annual membership of IEEE to avail its benefits and to further explore their respective engineering domains.

International Thermonuclear Experimental Reactor (ITER) Visit

The visit was scheduled on August 26, 2016 from 10 am to 4pm. It witnessed a successful participation of 30 students. The visit was supervised by Prof. Leena Santosh (electrical engineering faculty, PDPU). The **International Thermonuclear Experimental Reactor (ITER)** is an international nuclear fusion research and engineering megaproject to build the world's largest experimental tokamak nuclear fusion reactor. This visit was arranged for the 3rd year electrical students for gaining knowledge of plasma physics and also about other diagnostic instruments.

The students witnessed the tokamak nuclear fission reactor and were also explained its details by the scientists. And the most important thing is that they got to know the practical application of what is being taught to them in the class rooms.

IEEE Students Member Achievements

Mr. Shaurya Sheth, Mr. Akshay Agarwal and Mr. Pranav Vora were awarded Annual Meet travel grant for Poster Presentation held in Portland, Oregon, USA during 2-6 October, 2016. Mr. Shubham Paranjape, Mast. Kaustubh Sadekar and Mast. Abhijeet Sodha got 3rd Prize in Robotics Demonstration Competition in Portland, Oregon, US during 2-6 October, 2016.



Department of Industrial Engineering

Guest lecture

A Special Lecture was arranged on on "Lean Transformation & Business". It was Conducted by Mr. Sujal Shah, Plant leader, Ingersoll Rand (INDIA) and Mr. Dinesh Menon, HR.



Workshop

A Workshop was conducted on Matrox Imaging Library (MIL). Workshop consisted of two technical session followed by hands-on session on fundamental modules and different applications of image processing. It was conducted by Mr. E. Sureshkumar (Benchmark Electronic System)



Industrial Research and Development

| Area of Research | Name of the faculty member(s) | Title of Research Project | Funding Agency | Amount Rs. (in lacs) |
|----------------------------|-------------------------------|--|-------------------------|----------------------|
| Industrial Inspection | Dr.M.B.Kiran | Evaluation of Flatness of Machined Surfaces Using Vision System | ORSP, PDPU, Gandhinagar | RS. 0.5 lacs |
| Industrial Quality Control | Dr.M.B.Kiran | Evaluation of Flatness of Machined Surfaces Using Vision System | ORSP, PDPU, Gandhinagar | RS. 0.5 lacs |
| Optimization | Dr. Poonam Savsani | Solving travelling salesman problem using metaheuristic methods | TRU, Canada | Rs. 2.5 lacs |
| Manufacturing Engineering | Mr. Kishan Ashok Fuse | Multi response optimization of Glass Fiber-Reinforced Polymer (GFRP) composites using grey relational analysis | ORSP | Rs. 20000 |

Faculties Achievements

| Sl.no. | Authors | Title | Name of the conference | Venue | Date |
|--------|------------------------------------|--|--|----------------|----------------------|
| 1 | Varsha, Shradhdha and Dr.M.B.Kiran | Texture Identification Using Vision System | Sponsored 2 nd International Conference for Convergence in Technology 2017. | Pune | 7,8, 9 April 2017 |
| 2 | Srushti Bhatt and Dr.M.B.Kiran | A performance measure for simple assembly line balancing problem using petrinet. | IV International Conference on Production & Industrial Engineering (CPIE-2016) Dr B R Ambedkar National Institute of Technology, Jalandhar | NIT, Jalandhar | December 19-21, 2016 |



Department of Civil Engineering

Students Papers Presentation:

1. **Dishant Bodana** (14BCL009);
Sudhanshu Dixit “Study of Flow Characteristics of Hydraulic Jump in Open Channel Flume Through a Layer of Submerged Vegetation and Round Pebbles” 21st International Conference on Hydraulics, Water Resources and Coastal Engineering, 08th -10th Dec, 2016, Pune

2. **Jishnu Gohel** (Full time PhD Scholar)
Debasis Sarkar “Comparative Study of CUSUM with V-Mask and EWMA Control Charts for Strength Monitoring of Ready Mixed Concrete, 6th International Conference on Recent Trends in Engineering, Science & Management (ICRTE SM-17), 8th Jan, 2017. NITTTR, Chandigarh.

Training Programme Attended (By Students):

Dharmil Joshi (13BCL036); **Jaimin Korat** (13BCL043); **Satyendra Sharma**(13BCL104):

Indo Norwegian Training Programme 2016, Building Materials and Technology Promotion Council (BMTPC), IIT Delhi, NORSAR, 8-10th Dec, Delhi.



Department of Chemical Engineering



Sri Bipinbhai Vora after 48 years of industrial experience has joined at chemical engineering department, PDPU in January 2017 as *Distinguished Visiting Faculty* for a short tenure. He will be teaching “Integrated Process Design Course” to final year B. Tech. students of Chemical Engineering as well as M. Tech. (Chemical) and at the Petroleum Engineering Department. Sri Vipinbhai Vora is well known internationally for his process development work in refining and petrochemical industry.

He holds 92 US patents and more than 250 international patents. Mr. Vora was personally involved in setting design of LAB plants of IPCL, Reliance, TPL, Norma and IOC in India. Mr. Vora has been honored by several organizations. He has received several prestigious awards from American Chemical Society (ACS), American Institute of Chemical Engineers (AIChE), Indian Institute of chemical Engineers (IChE), Catalysis Society of India, ChemTech and others. In 2013 he received Lifetime Achievement Award from Platts Global Energy. Born in Harij, North Gujarat, Sri Bipinbhai did his high schooling from Dhrangadhra and went on to K. C. College in Mumbai for doing B.Sc. with honors. After completing studies in Mumbai he went for study abroad. He received B.S and M.S. degrees in Chemical Engineering from University of New Mexico. He joined UOP LLC, A Honeywell Company in 1967.

He was with UOP till June of 2015. Department welcomes new joined faculty. Recently Chemical engineering department has inducted three new faculties Dr Swapnil Dharaskar, Dr Manish Sinha and Dr Teja Reddy. A brief profile of them is given below more details can be obtained from department website.

Dr. Swapnil A. Dharaskar, is currently working as Assistant Professor in Department of Chemical Engineering, School of Technology at Pandit Deendayal Petroleum University (PDPU) Gandhinagar, Gujarat, India. He has around 08 years of industrial, research and teaching experience. He has more than 30 research papers (25 in international referred journals). He has guided 08 M.Tech and more than 40 B.Tech

students. He is the Editors and reviewer of several high reputed international journals. He is the Life Member of IChE, ISTE, ISRD, IAENG etc. He has got awarded as Overseas Postdoctoral Fellow in University of Technology, Lappeenranta, Finland from DST Govt. of India.

His research interest is in process intensification, Ionic Liquids, Desulfurization, nanotechnology, Water treatment, Separation technology etc.

Dr. Manish Kuma has done his B.E. in chemical engineering from Bharati Vidyapeeth college of Engineering, Pune. Afterwards, he joined M. Tech. program in Petroleum Refinery Engineering at Indian Institute of Technology Guwahati in 2009. He received PhD degree in 2015 from Department of chemical Engineering, IIT Guwahati. His major area of research includes the preparation and characterization of fouling resistant ultra-filtration membranes. His research activities are focused on synthesis and characterization of stimuli responsive materials, designed to respond to changes in pH, temperature and ionic strength and finally their application for the modification of polymeric membranes. He has published 9 SCI research papers in reputed international journals like Journal of Membrane Science (Elsevier), Desalination (Elsevier), RSC Advances (Royal Society of Chemistry) etc. The total impact factor of his publications is 35.34. In 2009 and 2011, he was awarded with MHRD Govt. of India scholarship for pursuing M. Tech and PhD respectively.

In 2013 at CSIR-CGCRI Kolkata, during ICMA 2013, he was awarded with best poster presentation award.

Dr. Teja Reddy Vakamalla is currently working as an Assistant Professor in the Department of Chemical Engineering, School of Technology at Pandit Deendayal Petroleum University, Gandhinagar, Gujarat. He specialized in the area of CFD in Mineral processing. During his PhD, he worked for three different industrial projects (TATA Steel, Tega Industries and NMDC) apart from a DST project. His research outcome is visible in terms of his publications in internationally referred reputed journals and conference proceedings. His research focus is more inclined towards solving the industrial problems by using CFD techniques. Currently he is the reviewer of Powder Technology, Separation and Purification Technology and physico-chemical Problems of Mineral Processing.

Faculty Achievements

Award

Dr. Swapnil A. Dharaskar, received the “*Best Paper Award*” for Oral Presentation under the category of Mass transfer in 69th Annual Session of IChE (Chemcon-2016) was held at IIT, Chennai, India during December 27– 30, 2016.

Book Chapter Published

Dr S K Dash authored a book chapter which has been published by Springer with the following details.

Series Title : Green Energy and Technology

Book Title : Energy Efficient Solvents for CO₂ Capture by Gas-Liquid Absorption

Book Subtitle : Compounds, Blends and Advanced Solvent Systems

ISBN : 978-3-319-47261-4

CHAPTER 9 : Post-combustion Carbon Dioxide Capture with Aqueous (Piperazine + 2-Amino-2-Methyl-1-Propanol) Blended Solvent: Performance Evaluation and Analysis of Energy Requirements

Department of Mechanical Engineering

Workshop on Vehicle Dynamics (Basics)

Date: 3/12/2016 to 4/12/2016

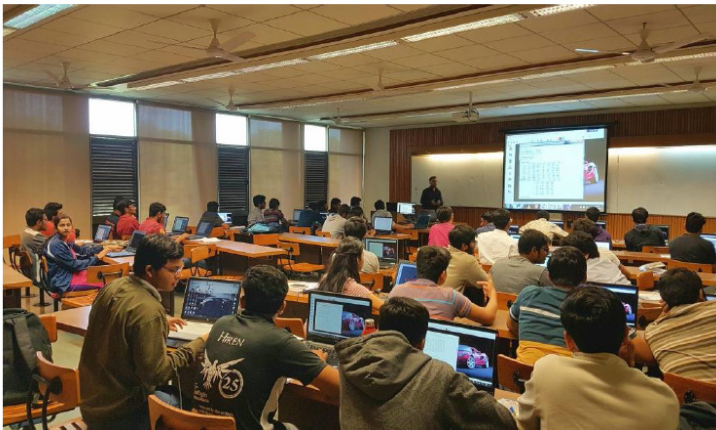
Organizer's name- Mr. Krunal Mehta

Expert- Mr. Tushar Joshi, a representative from M/s Monkfox, Bangalore.

ABOUT THE EVENT:

Initially students were given a theoretical understanding of the various components of an automobile, their working and their role in vehicle mobility. Hands-on demo on 'Engine Simulation' software was also provided during the workshop. The topics covered during the workshop are listed below:

- Introduction to 'Vehicle Dynamics'
- Tyre Dynamics
- Acceleration Performance
- Braking Performance
- Suspension and Steering Systems.



Siemens Center of Excellence

Event Name: Winter Short Term Training Program-2016

Date: 19/12/2016 to 30/12/2016

Organizer's name- Dr. Vimal Savsani, Nodal Officer, Mr. Jaydeep Patel,
Mechanical Course Coordinator

Dr. Amit Sant, Electrical Course Coordinator

Expert- Mr. Tushar Joshi, a representative from M/s Monkfox, Bangalore.

ABOUT THE EVENT:

Siemens CoE-PDPU arranged the short term training program for the other college students, academicians and industry professionals for their skill development in specific domain from 19th December to 30th December, 2016. They have trained 83 trainees under these program which have been participated by different college student and faculties.

The different courses those were conducted during the training are: Basics of CNC Programming and CIM Laboratory, Essentials for NX Designers, Low Voltage Switch Gear, Basics of PLC, Intermed For NX Designers, Basics course on AC-DC drives



Achievements:

Review research article of **Dr. Kush Mehta** and **Dr. Vishvesh Badheka** titled “A Review on Dissimilar Friction Stir Welding of Copper to Aluminum: Process, Properties, and Variants” is in the list of Most read articles of journal “Materials and Manufacturing Processes”.

Dr. Kush Mehta, faculty of Mechanical Engineering Department, has obtained his doctorate degree (PhD) in January 2017 from School of Technology (SOT), Pandit Deendayal Petroleum University (PDPU).

Mr. Jaykumar Vora received the best paper award at the Young professional seminar organized by IIW (Indian Institute of Welding) at Ahmedabad on 1st October 2016. The seminar included papers from industries and universities such as L&T, IGCAR, IPR and IIT Gandhinagar. The paper was adjudged the best paper across all sessions.

Department of Solar Energy

Department of Solar Energy, PDPU has organized a special lecture on August 19th 2016. The speaker was Prof. Santanu Bandyopadhyay, ex-HoD, Energy Science and Engineering Dept., IIT, Mumbai, an eminent scientist in the field of solar thermal technology not only in India but also around the world.

Prof. Bandyopadhyay delivered the lecture on "Pinch Analysis", a methodology for reducing energy consumption of processes by calculating thermodynamically feasible energy targets (or minimum energy consumption) and achieving

them by optimizing heat recovery systems, energy supply methods and process operating conditions. It is also known as "process integration", "heat integration", "energy integration" or "pinch technology". Such pinch analysis results in substantial financial savings. Pinch technology has been successfully used in a wide range of industries, including non-chemicals: food industry, paper mill, etc to improve the energy efficiency of the process and reduce the global energy bill. The method is based on



thermodynamic principles and allows determining the best heat exchangers network and utility system.

In order to minimize irreversibility, it analyzes possible heat exchanges between cold streams (requiring heat) and hot streams (releasing heat). The process data can be represented as a set of energy flows/streams, as a function of heat load (or enthalpy) against temperature. These data can be combined for all the streams in the plant to give composite curves, one for all "hot streams" (releasing heat) and one for all "cold streams" (requiring heat). The point of closest approach between the hot and cold composite curves is the pinch temperature (pinch point or just pinch), and is where design is most

constrained. Hence, by finding this point and starting design there, the energy targets can be achieved using heat exchangers to recover heat between hot and cold streams. In practice, during the pinch analysis, cross-pinch exchanges of heat are often found between a stream with its temperature above the pinch and one below the pinch.

Removal of those exchanges by alternative matching make the process reaches its energy target. Around sixty people had attended the seminar, which include faculty and students from inside and outside PDPU. The questionnaire session lasted for about half an hour.

Placement Activities:

Since last more than couple of months, current passing out students are going through the T&P activity. All the departments have observed a very good response from the industry coming for placements as well as student participation. As of now about 58% of eligible students have been placed in various industries like (Reliance Manufacturing, Reliance Petrochemicals industries ltd., GSFC, Honeywell, L&T, Infosys, Essar Oil etc)

Thank you