

Faculty Profile

Name :	Dr. Diptesh Patel (Associate Professor, LJIET)	
Date of Birth :	29/01/1982	
Educational Qualifications:		
-Ph.D. (University)	Ph.D. , Gujarat Technological University (2012-2017)	
-Master's (University)	Master of Engineering, Victoria University (2006-2008)	
-Bachelor's(University)	Bachelor of Engineering, Pune University (2001-2005)	
-Any Other:	-----	
Area of Specialization :	I C Engine, Fluid Mechanics	
Date of Joining (LJIET)	29/09/2018	
Present Position :	Associate Professor, PG Department, L.J. Institute of Technology	
Contact Details:		
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-Email	dr.dipteshpatel_ljiet@ljinstitutes.edu.in, dipteshptl@gmail.com	
-Phone	(M) 9408741450	
Work Experience :	Teaching (12 years) Industrial(--) Research & Development(--)	
Subjects taught :		
-Under Graduate level	Refrigeration and Air-conditioning (6th Sem.)	
-Post Graduate level	ATHT (1st Sem.), AICE (1st Sem.), RM & IPR (1st Sem.), ARE (2nd Sem.), ECM (2nd Sem.), AFM (2nd Sem.), JPAE (3rd Sem)	
Area of Specialization in your field	Fluid flow through the intake manifold	
A brief account of work done by you in the M. E. and Ph.D.	<p style="text-align: center;">M.E.</p> <p>" Natural Convection in a Pentagonal Cavity Partially Filled with a Hygroscopic Porous Medium "</p> <p>Analysis is undertaken for natural convection heat transfer of the peak roof surface geometry that is divided with fluid and fluid-saturated hygroscopic porous medium. The two regions separated by an interface. Different temperatures considered to be at the left and right side walls, while the top wall considered to be an adiabatic. Velocities, stress, strain and heat fluxes are assumed to be continuous across the fluid and hygroscopic porous medium. CFD software packages and a numerical process were used to calculate the heat transfer rate. By the help of CFD it is found that the intensity of natural convection is much higher in the fluid region than the porous region. The velocity is recorded very low in porous region while it is found higher along the fluid region. The simulation also has been done by the various temperatures and initial moisture contents to determine the effect of those factors on the performance of the system. It is found that the temperature distribution in the porous medium is greatly influenced by conduction on the other hand it occurred in the fluid region due to convection. It has been seen that the temperature difference play a vital role in the convection. It is also recorded that the relative humidity is very low over the fluid region, while higher moisture contents found in the porous medium.</p>	

Ph.D.***"Design and Optimization of Milk-Run Material Supply System with Simultaneous Pickups and Deliveries in Time Windows"***

Material handling is one of the most crucial issues that should be taken into account for eliminating waste, reducing the cost and just in time-based delivery of the product. Many industries are spending millions of bucks for the transportation of the goods. An effective transportation management system has to be implemented to control the cost of transportation and inventory. The optimized milk-run concept can be utilized to overcome the issue related to the supply chain management system. The milk-run material supply system is the cyclic trips, where either good are collected from several suppliers and delivered to one customer, or goods are collected from one supplier and delivered to several customers. The objective of this research is the minimization of the total material handling and inventory holding cost. It is also concentrated on just in time delivery to enhance the customer satisfaction. These saving of cost could be either used for reduction of the product cost, which will boost up the sales or lift the profit margin of the organization.

The purpose of this research is to develop a mathematical model and a heuristic approach, which is utilized to construct the routes, calculate the associated cost and determine the service period for the design of a milk-run material supply system with simultaneous pick-up and delivery. The material supply by this system occurs on a just-in-time basis from regional offices to several stations of the courier service. Besides, the proposed heuristic approach intends to construct routes based on an initial service period value and attempts to improve the solution by considering different period values. Furthermore, the scheduling of the vehicles is calculated based on demands and routes of the network. The most optimum solution is decided on the basis of the least total transportation cost and minimum time. A genetic algorithm is proposed to solve the vehicle routing with simultaneous pickup and delivery within time frame (VRPTWSPD) problem related to the milk-run concept. The algorithm is applied with the help of Matlab and results are presented. The result showed the performance and effectiveness of the algorithm.

New Technologies /methods developed by you

Scale up and Technology Transfer

Industrial Projects Carried Out : (No.)

Revenue/Royalty earned by the Organization in Indian Rupees

No. Government funded Projects undertaken by you and their total value

Research Guidance :

-Master's

25

-Guide for PhD

01**Summer/Winter/School/Conference/Workshops attended:****14****Summer/Winter/School/Conference/Workshops Conducted:****03**

Patents taken/applied for: -----

Publications: No of books: 0

Research Papers : 35 (34 in International Journals, 01 in National Journals)

Some of the notable papers are mentioned below:

1. International Journal of Engineering Research and Applications **2020**

Experimental Study of Heat Transfer Enhancement in Shell and Tube Heat Exchanger Using Nano Fluid

<https://www.ijera.com/papers/vol10no7/Series-2/C1007022131.pdf>

2. Journal of Emerging Technologies and Innovative Research **2019**

THE PARAMETERS AFFECTING ON THE DESIGN AND PERFORMANCE OF INFRARED BLACKBODY – A REVIEW

<http://www.jetir.org/papers/JETIR1905406.pdf>

3. International Journal of Technical Innovation in Modern Engineering & Science **2018**

Effect of process parameters on AA 7108 T79 using friction stir welding on single side and double side welded joint

http://ijtimes.com/papers/finished_papers/150514181738.pdf

4. International Journal for Innovative Research in Science & Technology **2017**

Design and Development of Milk-Run Material Supply System with Time Windows and Simultaneous Pickups and Deliveries

<https://www.ijirst.org/articles/IJIRSTV4I2048.pdf>

5. International Journal of Mechanical And Production Engineering **2016**

EFFECT OF PROCESS PARAMETERS ON AL6061 T-6 USING FRICTION STIR WELDING BY RSM METHOD

http://www.iraj.in/journal/journal_file/journal_pdf/2-275-147091760470-74.pdf

6. International Journal of Scientific review and research in engineering and technology **2016**

The Impact of Supply Chain Management practices on Firm Performance

<http://www.ijsrret.co.in/abstract.php?dnld=77>

7. International Journal of Application or Innovation in Engineering & Management **2014**

Implementation of milk run material supply system in vehicle routing problem with simultaneous pickup and delivery

<https://pdfs.semanticscholar.org/370d/90021921e6303daa8aeb6bed291d8baeff8a.pdf>

8. International Journal of Research in Engineering and Technology **2014**

IMPLEMENTATION OF STATISTICAL QUALITY CONTROL (S.Q.C.) IN WELDED STAINLESS STEEL PIPE MANUFACTURING INDUSTRY

Conferences ,Workshops and Seminars: 04

1. Paper presented in international conference on Mechanical and Aerospace Engineering entitled "Effect of Process Parameters on Al6061 T-6 using Friction Stir Welding By Rsm Method” at New york, USA, 2016.
2. Paper presented in national conference entitled "A Review on Effect of Preheating on 6061 T-6 AL using Friction Stir Welding by RSM Method” at Saffrony Institute of Technology , Mehsana 2015.
3. Attended the workshop on “Hands on Experience on LATEX Tool and EES” at SVBIT 2014.
4. Attended the seminar on “Effective Teaching Tools and Applications” at SVBIT 2016.

Notable Achievements and activity executed:

- **Approved Ph.D. guide** in Mechanical Engineering at GTU
- **Reviewer** at International Conference on Scientific Revolution through Engineering & Technical Research, GTU
- **Reviewer** at National Innovation Foundation
- **Has touched 45 citation index at Google Scholar (as on 12-07-2020)**
<https://scholar.google.com/citations?user=4nKcudUAAAAJ&hl=en>
- **Convener, GUJCOST sponsored workshop** on "5S Planning and Implementation" in 2018

Association with Professional Bodies

AICTE, ISHRAE, Engineers Australia, NIF

Grants Received/Fetched:

Consultancy and Expertise available for industries
