Faculty Profile

Name :	Dr. Shailesh A. Bhanotar (Assistant Professor)
Date of Birth :	17/12/1987
Educational Qualifications:	
-Ph.D. (University)	Ph.D. in Mathematics, (Rai University)
-Master's (University)	M.Sc in Matematics, (Sardar Patel University)
-Bachelor's(University)	B.Sc in Mathematics, (Gujarat University)
-Any Other:	
Area of Specialization :	Mathematics
Date of Joining (LJIET)	18/07/2018
Present Position :	Assistant Professor, L J Institute of Engineering & Technology, Ahmedabad.
Contact Details:	
-Address :	703, Swastik Heights, Zundal,Ahmedabad-382470
-Email	**shailesh.bhanotar_ljiet@ljinstitutes.edu.in**
-Phone	**(R)** **(M)** :09909127237
Work Experience :	Teaching (**8.9 years**) Industrial(-) Research& Development(-)
Subjects taught :	
-Under Graduate level	Maths-1 (Calculus), Maths-2 (Vector calculus & Linear Algebra) Msths-3 (Advanced Engineering Mathematics), Maths-4 (Complex variable & Numerical Methods), Numerical & Statistical methods for Civil Engineering, First year B.Sc & B.B.A.
-Post Graduate level	Numerical Methods for civil Engineering (M.Tech)
Area of Specialization in your field	Number theory- Pythagorean triples, Differential Equation
A brief account of work done by you in the Ph.D.	**Ph.D** **Title: Associating Different Branches of Mathematics to the generalized Pythagorean Triplets** My mathematical research is focused on the theory of Pythagorean triplets related to number theory. During my Ph.D. studies, I tried to look for some hidden sources that can enable us to lead and direct to many sources in science and to its different branches. Also tried to explore some mathematical properties in details to use different mathematical areas like matrices, graph theory, number theory, co-ordinate geometry and calculus to enhance this renewed area. In my Ph.D. thesis, I have introduced new pattern of Pythagorean triplet to generate multiple Pythagorean primitive which deals to tell us that how many Pythagorean primitive triplets will be there to corresponding to a shorter leg? Also I have introduced the pattern and nature of Pythagorean triplet in a new form taking it to angels and amplitudes corresponding to a given triplet. This helps to pursue algebraic operations like addition and subtraction gives interesting results of finding two different Pythagorean triplets with the same hypogenous which is, in fact, the product of two hypotenuses of two distinct primitive triplets. Moreover, I have introduced a new concept E-Pythagorean triplet by relaxing the restrictions on a, b and h and allowing them to be in the

set $Q^+ \cup \{0\}$. As a result, to this I introduce dual triplets of a given triplet. All the dual triplets exhibit parallel properties to that of Pythagorean triplets. Also, I have explicitly discussed about the total number of dual triplets associated with a given triplet. And draws some important points closely related to Pythagorean triplets by defining dual of a given triplet and then by establishing some algebraic properties between two or more triplets. also I have mentioned that One Primitive Pythagorean Triplets-of a right triangle can associate (generate) infinite right triangles with rational sides.

I have added, details calculating Fermat point and Napoleon point in right triangles of Fermat family - with sides observing Fermat properties. General formulae for Fermat and Napoleon points have been derived they align with mathematical properties inherent in these said points.
Finally, I have established a systematic approach of extending Fermat properties to some consecutive positive integers and identified mathematical symmetry by introducing its general format.

New Technologies /methods developed by you	**No**
Scale up and Technology Transfer	**No**
Industrial Projects Carried Out :(No.)	**No**
Revenue/Royalty earned by the Organization in Indian Rupees	**No**
No. Government funded Projects undertaken by you and their total value	**No**
Research Guidance :	
-Master's	**No**
-Guide for PhD	**No**
Summer/Winter/School/Conference/ Workshops attended:	**25**
Summer/Winter/School/Conference/ Workshops Conducted:	**0**
Patents taken/applied for:	No

Publications: Research Papers: (5) in International Journals)

1. **IOSR Journal of Mathematics (IOSR-JM)**   **March- 2015**
   Pythagorean Triplets—Views, Analysis, and Classification,
   http://iosrjournals.org/iosr-jm/papers/Vol11-issue2/Version-3/I011235463.pdf

2. **International Journal of Applied Research (IJAR)**   **Sept.- 2015**
   Pythagorean Triplets (Alternative Approach, Algebraic Operations, Dual of Given Triplets, and New Observations)"
   http://www.allresearchjournal.com/archives/2015/vol1issue10/PartL/1-10-98-298.pdf

3. **The proceedings of the International Conference on Emerging Trends in Scientific Research (ICETSR-2015)**   **Dec.-2015**
   Pythagorean Triplets- Some Important Sequences and Inter Connectivity.
   https://www.researchgate.net/publication/342748322_Pythagorean_Triplets-_Some_important_Sequences_and_interconnectivity_Proceeding_International_Conference_on_Emerging_Trends_in_Scientific_Research_ICETSR-2015?channel=doi&linkId=5f04a63992851c52d61e2b83&showFulltext=true

4. **International Journal of Mathematics & Computer Applications Research (IJMCAR),@ Transstellar Journal Publications and Research Consultancy Private Limited (TJPRC PVT. LTD.) (Dec.-2016)**
Pythagorean Triplets associated Dual Triplets and Algebraic Properties, Fermat Point, Napoleon Point and Extension of Fermat Property for Pythagorean Triplets.
http://www.tjprc.org/publishpapers/2-45-1477997511-6.%20IJMCAR-Pythagorean%20TripletsAssociated%20Dual%20Triplets%20and%20Algebraic%20Properties,.pdf

5. **International Journal of Computational and Applied Mathematics.© Research India Publications. (Nov.2017)**
Equivalent Statements and Conjectures Associated with Pythagorean Triangles
https://www.ripublication.com/ijcam17/ijcamv12n3_08.pdf

Paper Presented in Conference:

1. **The proceedings of the International Conference on Emerging Trends in Scientific Research (ICETSR-2015) organized by C. U. Shah University, At Wadhawan. December 17-18, 2015.**

   Pythagorean Triplets- Some Important Sequences and Inter Connectivity

2. **International conference of The Indian Mathematics Consortium (TIMC) in cooperation with American Mathematical Society (AMS) at Banaras Hindu University, during Dec. 14-17, 2016**

   Pythagorean Triplets associated Dual Triplets and Algebraic Properties, Fermat Point, Napoleon Point and Extension of Fermat Property for Pythagorean Triplets.

No of books: 2

Sr. No.	Title	ISBN
1	Calculus: Tutorial Workbook	978-93-5268-779-4
2	Advanced Engineering Mathematics : Tutorial Workbook	978-93-5268-664-3

Conference/STTP/Workshop/Seminar/Webinar/Workshop/FDP attended:

No	Activity Type	Title	Host Institute	Duration
1.	FDP	MATHEMATICS : A Practical Approach in Science and Technology	Department of Basic Science and Humanities, Deogiri Institute of Engineering and Management Studies,Aurangabad (Maharashtra).	Six days
2.	International Webinar Series	Advances in Mathematics	Tata Institute of Social Sciences, Tuljapur	Six days

	3.	Online STTP	"Recent Trends In Data Science And Information Security"	Department of Computer Engineering, Ramrao Adik Institute of Technology,Nerul, Navi Mumbai, Maharashtra.(D Y Patil University Navi Mumbai)	Five days	
	4.	Online STTP	Internet of Things (IoT) & It's Applications in Industry	Department of Instrumentation Engineering, Ramrao Adik Institute of Technology, Navi Mumbai and B&R Automation PVT.LTD.Pune (D Y Patil University)	Five days	
	5.	Online Webinar	Additive Manufacturing & it's Applications	Shri Venkateswaraa college of technology, Anna University Chennai	One day	
	6.	Online Webinar	Global Opportunities in space exploration and research	Shri Venkateswaraa college of technology, Anna University Chennai	One day	
	7.	Online Webinar	Future of Automotive Technology	Shri Venkateswaraa college of technology, Anna University Chennai	One day	
	8.	Online Webinar	Deep Learning for Computer Vision	Shri Venkateswaraa college of technology, Anna University Chennai	One day	
	9.	Online Webinar	Start where you are	Shri Venkateswaraa college of technology, Anna University Chennai	One day	
	10.	Online STTP	"MATLAB based Teaching-Learning in Mathematics, Science & Engineering"	Department of Electronics Engineering, Ramrao Adik Institute of Technology, Nerul, Navi Mumbai in collaboration with DesignTech Systems Pvt. Ltd., Mumbai	Five days	
	11.	Seminar	Applications of Mathematics in Engineering	Adani Institute of Infrastructure Engineering,Ahmedabad	One day	

12.	FDP	Foundation Program in ICT for Education	SPCE, Visnagar	Two weeks
13.	Conference	Gujarat Ganit Mandal - 53rd Annual Conference	Ganpat University, Kherva	Three days
14.	Symposium	Interdisciplinary mathematical science	BHU, Banaras	Four days
15.	STTP	Technical Communication	IIT Bombay	Two Weeks
16.	STTP	Engineering Physics	SPCE, Visnagar	Ten Days
17.	STTP	Technical Communication for Science and Engineering	SPCE, Visnagar	Two weeks
18.	Seminar	Applications of Mathematics in Engineering	PDPU, Gandhinagar	One day
19.	Workshop	Signals & Systems	SPCE, Visnagar	Ten Days
20.	STTP	Optimization Techniques for scientists and Engineers	SVNIT, Surat	Five Days
21.	Workshop	Aakash for Education	SPCE, Visnagar	Two Days
22.	Workshop	Pedagogy sessions in Calculus	L. D. College of Engineering, Ahmedabad	Four Days
23.	Workshop	Problem Solving in Mathematics	Department of Mathematics, S. P. University	Seven Days

Notable Achievements and activity experience:

- I have successfully completed Ph.D. on my research topic "Associating Different Branches of Mathematics to the Generalized Pythagorean Triplets" under the guidance of Dr. Pradeep J. Jha.
- Passed "Professor A. R. Rao Mathematics Test" for M.Sc. students, held in the year 2010.
- Two day training completed with 15 credits of the **International Certified Career Coach Program (Foundation Level-1)** organized by Mindler on June 27-28-2020.
- National Level **Mathematics Aptitude Test** conducted by Department of Mathematics and Humanities, Kakatiya Institute of Technology and Science, Warangal, Telangana held on 3-7-2020 with a score of 100%.
- Course completed on **Mathematics for Machine Learning: Multivariate Calculus** an online non-credit course authorized by Imperial College London and offered through Coursera.
- Course completed on **Mathematics for Machine Learning: Linear Algebra** an online non-credit course authorized by Imperial College London and offered through Coursera.
- Course completed on **Mathematics for Machine Learning: PCA** an online non-credit course authorized by Imperial College London and offered through Coursera.
- Course completed on **Principal Component Analysis with NumPy** an online non-credit course authorized by Imperial College London and offered through Coursera.
- Course completed on **AI For Everyone** an online non-credit course authorized by deeplearning.ai and offered through Coursera.

	• **Network Expert-Chegg**
Association with Professional Bodies	• Member of Board of studies of Faculty of Engineering and Technology, Sankalchand Patel University. • Member of the Board of Reviewers for the "International Journal of Mathematics and Computer Applications Research" (Trans Stellar Publication).
Grants Received/Fetched:	No
Consultancy and Expertise available for industries	**No**