



SHRIMATI INDIRA GANDHI COLLEGE

(Affiliated to Bharathidasan University)

Nationally Accredited at 'A' Grade (4th Cycle) by NAAC | An ISO 9001 : 2015 Certified Institution
Tiruchirappalli - 620 002

Name : Ms. R. Vanaja
Designation : Assistant Professor
Department : PG & Research Department of Mathematics
Qualification : M.Sc., M. Phil., (Ph. D)
Experience : **Teaching:** 18 years 8 months **Research:** 5 years
Area of Specialization(s) : Number Theory
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Academic Qualifications

Degree	Branch	Institution / University Name	Year of Graduation
M. Phil	Mathematics	Seethalakshmi Ramaswamy College, Trichy.	2005
M. Sc	Mathematics	Seethalakshmi Ramaswamy College, Trichy.	2003
B. Sc	Mathematics	Seethalakshmi Ramaswamy College, Trichy.	2001

Research Publications (Indexed)

International:

1. Dr. V. Pandichelvi and Mrs. R. Vanaja, **“INCREDIBLE FIGURATE NUMBERS WITH CHARMING PROVISION”**, Adalya Journal, Volume 9, Issue 4, pg: 520-532, April2020.
2. Dr. V. Pandichelvi and Mrs. R. Vanaja, **“NOVEL APPROACH OF EXISTENCE OF SOLUTIONS TO THE EXPONENTIAL EQUATION $(3m^2+3)+(7m^2+1)^y=z^2$ ”**, Turkish Journal of Computer and Mathematics Education, Volume12, Issue1S, pg:376-381, April 2021.
3. Dr. V. Pandichelvi and Mrs. R. Vanaja, **“INSPECTING INTEGER SOLUTIONS FOR A NEXPONENTIAL DIOPHANTINE EQUATION $p^x + (p + 2)^y = z^2$ ”**,

4. Dr. V. Pandichelvi and Mrs. R. Vanaja, “**Generating Diophantine Triples Relating to Figurate Numbers with Thought-Provoking Property**”, JNANABHA Journal, Volume52, Issue2, pg:106-110, December2022.
5. Mrs. R. Vanaja and Dr. V. Pandichelvi, “**Creation of Sequences of Singular 3-Tuples through Abel And Cyclotomic Polynomial With Commensurable Property**”, JNANABHA Journal, Volume 53, Issue 1, pg: 101-105, May 2023.
6. Dr. V. Pandichelvi and Mrs. R. Vanaja, “**Development of Non-Stretchable Triples with Numerable Features**”, International Journal for Research in Applied Science and Engineering Techniques, Volume11, Issue VII, pg: 1365-1367, June 2023.
7. Dr. V. Pandichelvi and Mrs. R. Vanaja, “**Taxation of The Set Of 4-Tuples With Separate Characteristics**”, IOSR Journals, Volume19, Issue 4, Series 1, pg: 19-23, July- August 2023.
8. Dr. V. Pandichelvi and Mrs. R. Vanaja, “**Application of Diophantine Equations in Cryptography**”, International Journal of Scientific Research and Engineering Development, Volume6, Issue 5, pg: 208-211, Sep - Oct 2023.
9. Dr. V. Pandichelvi and Mrs. R. Vanaja, “**A Paradigm for Two Classes of Simultaneous Exponential Diophantine Equations**”, Indian Journal of Science and Technology, Volume 16, Issue 40, pg:3514-3521.
10. R. Vanaja and V. Pandichelvi, “Significance of Continued Fraction to Solve Binary Quadratic Equations”, Indian Journal of Scientific Engineering and Science, Volume 8, Issue 2, 2024, 1-6.
11. R. Vanaja and V. Pandichelvi, “**Employment of continued fractions to discover solutions of the Diophantine equation $x_n^2 - (p^2 - Mq)y_n^2 = (Mq)^{2n}$** ”, International Research Journal of Education and Technology, Volume 6, Issue 5, 2024, 286-294.
12. V. Pandichelvi and R. Vanaja, “**Advancement of Patterns of Remarkable forms of Polygonal Numbers with Amicable Conditions**”, International Journal of Advance Research and Innovative Ideas in Education, Vol. 10, Issue 5, 2024, 1344-1349.
13. V. Pandichelvi and R. Vanaja, “**Special Category of Assembly of Linear Combination of m-gonal Numbers**”, International Journal of Science & Research, Volume 13, Issue 10, 2024, 516-519.

14. V. Pandichelvi and R. Vanaja, "Structure of Binary trees of 2-adic valuation for non-negative integers in the image of Octagon", International Journal of Novel Research and Development, Vol. 9, Issue 10, 2024, 707-716.
15. V. Pandichelvi and R. Vanaja, "Draft of 2-adic Valuation Trees for Natural Numbers in the Visualization of Hexagon", Indian Journal of Science and Technology, Vol 17, Issue 42, 2024, 4422-4428.
16. **R. Vanaja, R. Rajanila and M. Pugazharasi** "Integral Solutions of Ternary Quintic Diophantine equations $x^2 + y^2 = 17z^5$ " in the **International Research Journal of Modernization in Engineering Technology and Science**, Volume 7, Issue 1, 2025, 5447-5449.
17. **R. Vanaja, M. Pugazharasi and R. Rajanila** "Integral Solutions of Ternary Quintic Diophantine equations $x^2 + y^2 = 10z^5$ " in the **International Research Journal of Education and Technology**, Volume 7, Issue 1, 2025, 333-338.
18. **R. Vanaja and R. Rajanila**, "Integral Solutions of Ternary Quintic Diophantine equations $x^2 + y^2 = 37z^5$ " in the **International Research Journal of Research Publication and Reviews**, Volume 6, No 2, 2025, 4776-4779.

Presentations in Conference

International:

1. International Virtual Conference on "Novel Approach of Existence of Solutions to the Exponential Equation" at Bannari Amman Institute of Technology, Sathyamangalam.
2. Paper presentation through online mode on a title "On two illustrious forms of Simultaneous Exponential Diophantine Equations" at International Conference on Applied Mathematical Modelling, Applied Analysis and Computational Intelligence (ICMMAACI-2022) organized by Department of Mathematics, The Gandhigram Rural Institute (Deemed to be University), Gandhigram, Dindigul during 02-04 March 2022.
3. Paper presentation on a title "Inspecting Integer Solutions for an Exponential Diophantine Equation $p^x + (p+2)^y = z^2$ " at Heber International Conference on Applied Mathematics, Management, Computer Science and Statistics organized by PG & Research Department of Mathematics, Bishop Heber College (Autonomous) on 18th March 2022.

FDP/Webinar

- Ms. R. Vanaja, Participated the AICTE-Staff Development Program on “Latest Trends and Applications of Probability, Random variables and Random Process” held at Department of Mathematics, MEPCO Schlenk Engg. College, Sivakasi, Tamil Nadu during 20.03.2006-25.03.2006.
- Internal Quality Improvement Program for Faculty on ‘OBE & Revised Bloom's Taxonomy’ organized by AIMA College of Arts & Science for Women on 23.11.2018 & 24.11.2018
- ‘Net coaching paper1’ organized by AIMA College of Arts & Science for Women on 19.10.18&20.10.18
- Faculty Development program on ‘Mathematical analysis using Maple and Mathematical Trials’ on 19.01.2019 at AIMA College of Arts & Science for Women, Trichy.
- Skill-based Development program on ‘Mathematical analysis using Maple and Mathematical Trials’ on 06.02 2019 at AIMA College of Arts & Science for Women, Trichy.
- One-day FDP on “Quality Upgradation Encores Sustained Triumph” – QUEST-1 on 13.06.2021 at AIMA College of Arts & Science for Women, Trichy.
- Online Faculty Development Programs Attended: 13
- Online International FDP, Webinar and Workshop Attended:04
- Online Webinar and National Webinar Attended:06
- A one-day workshop for the Mentee Institutions on “Preparation for NAAC Accreditation – A Participatory Process” Conducted under the UGC Scheme of PARAMARSH by the IQAC of St. Joseph’s College (Autonomous), Trichy -2, on 29th September 2021.
- Webinar on “Patent Filing Process and Challenges” organized by Intellectual Property Rights Cell, Jamal Mohamed College, Tiruchirappalli on 30.09.2021.
- One-day webinar on “Applications of Graph Theory” conducted by Department of Mathematics, AIMA College on 01.10.2021
- An Orientation Program on “SPOC” conducted by IQAC of AIMA College in association with SWAYAM NPTEL on 29.10.2021.
- Five days Faculty Development Programme on “Capacity Building” during 17.11.2021-23.11.2021 organized by IQAC of AIMA College.

- One-week online certificate course on “Digital Teaching Techniques” conducted by ICT Academy during 23rd -27th , November 2021.
- Two days FDP on “Enhancing Quality & Driving Changes in Higher Education Through NEP-2020” on 24th & 25th March 2022, conducted by IQAC of AIMAN.
- One-day workshop on “Scientific Writing using LaTeX” organized by PG & Research Department of Mathematics, National College (Autonomous), Tiruchirappalli-1 on 21.04.2022.
- One-week Faculty Development Programme on “Framework and Preparation of AQAR” organized by Indian Academic Researchers Association, Tiruchirappalli in association with West Bengal State University, West Bengal, Arumugam Pillai SeethaiAmmal College, Tiruppattur, Sivagangai during 15th – 21st June, 2022.
- One-day workshop on “NPTEL E-Awareness” organized by NPTEL on 28th June, 2022.
- IP Awareness/ Training program under National Intellectual Property Awareness Program on April 26, 2023.
- International webinar on “Applications of MATLAB” organized by Department of Mathematics & Statistics, St. Francis College, Bangalore on 13.07.2023.
- Faculty Development Programme on “Redefining Research Skills: Enriching Research Publications” from 1st April 2024 to 5th April 2024.
- Completed the NEP 2020 Orientation & Sensitization programme under Malaviya Mission Teacher Training Programme of UGC , organized by UGC-Malaviya Mission Teacher Training centre , Bharathidasan University, from 20.04.2024 to 29.04.2024 and obtained the Grade ‘A’.
- 40 hours Faculty Development Programme on “**Digital Productivity and AI Fluency**” under the Microsoft Digital Skills Programme conducted by Microsoft in partnership with Naan Mudhalvan from 01-07-2024 to 06-07-2024.
- Seven days Faculty Development Programme on “Understanding Outcome Based Education” from 10.06.2024 to 15.06.2024 & 18.06.2024 organized by Internal Quality Assurance Cell of Shrimati Indira Gandhi College.
- One Day International Conference “Emerging Trends In Mathematics and Physical Sciences” on 24.9.24 at Shrimati Indira Gandhi College.