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| Dr. A.Elakkiya | Photo  | | | |
| Designation: | Associate Professor | | | |
| Qualification: | M.SC., B.Ed., M.Phil., Ph.D | | | |
| Area of specialization: | Mathematics | | | |
| Experience: | Industrial Experience | | Teaching Experience | |
| | | | 3 | |
| Number of workshops / FDP attended: | Number of Workshops | | Number of FDPs | |
| | 12 | | 12 | |
| Publications: | Conference | | Journal | |
| | National | International | National | International |
| | | 13 | | 23 |
| Books / Book Chapters | Book :1, Book Chapters: 5 | | | |
| Patents: | National | | International | |
| | 1 | | | |
| Professional Body Membership | IEEE Membership | | | |
| Research | Vidwan ID: 581256 Google Scholar ID: https://scholar.google.com/citations?hl=en&user=C6RzOD4AAAAJ Scopus ID: https://www.scopus.com/authid/detail.uri?authorId= | | | |

56766196200
Anna University Guideship:

Educational Qualifications:

| Category | Name of the Degree | Specialization | Year of Passing | Name of the College | Name of the University | % of Marks / Grades obtained | Class obtained |
|-----------------|---------------------------|-----------------------|------------------------|----------------------------|-------------------------------|-------------------------------------|-----------------------|
| | Ph.d | Graph Theory | 2021 | VIT | VIT | 9.2 | First |
| | M.Phil | Mathematics | 2012 | Auxilium college | Thiruvalluvar University | 92% | First |
| | M.Sc | Mathematics | 2010 | Auxilium college | Thiruvalluvar University | 8.41 | First |
| | B.Sc | Mathematics | 2007 | AAA, Walaja | Thiruvalluvar University | 76% | First |

Academic Experience:

| Name of the College | Designation | Joining Date | Relieving Date | Experience | | |
|--|----------------------------|---------------------|-----------------------|-------------------|---------------|-------------|
| | | | | Years | Months | Days |
| Ranipet Engineering College, Ranipet | Assistant Professor | 2/06/12 | 5/7/2013 | 1 | 1 | 3 |
| Kings Engineering College, Sriperumbudur | Assistant Professor | 12/07/2023 | 10/9/2024 | 1 | 2 | 27 |
| Sri Sairam Institute of Technology , Chennai | Assistant Professor | 11/9/24 | 30/06/202 | 0 | 9 | 9 |
| Sri Sairam Engineering College, Chennai | Associate Professor | 01/07/2025 | Present | 0 | 9 | |

Patent

“**Multi – Factor Authentication system Based on Dynamic Prime Factor Decomposition**”, Indian Patent Application Number : 202541108562 A **Status** : Published (Patent office journal, 28 Nov 2025)

Invited Talk

Given a talk as a Resource person for the Value Added Program on “Advanced Topics in Graph Theory”, organized by the Department of mathematics, VIT , Vellore, Sep 14, 2025.

Editorial Activity

Served as a Reviewer for an International **Scopus indexed Elsevier Journal** (Journal of King Saud University: Science), Contributing expert evaluation of submitted manuscripts.

List of Publication in Reputed Journals

1. V. Sankaran, M. Yamuna, A. Elakkiya, Development and Analysis of Fault Tolerant Algorithms for Spanning Trees of a Computer Network, International Journal of Advance Research In Science And Engineering, Vol. No.4, Special Issue (02), February 2015 (132 – 138).
2. M. Yamuna, A. Elakkiya, Planar Graph in Data Encryption, International Journal of Advance Research In Science And Engineering, Vol. No.3, Special Issue (01), March 2015 (1600 – 1606).
3. M. Yamuna, A. Elakkiya, Data Transfer Using Fundamental Circuits, International Journal of Computer and Modern Technology, Vol 2, Issue 1, 67 – 71.
4. M. Yamuna, A. Elakkiya, Position Matrix in DNA Sequence Alignment with Gaps, Der Pharmacia Lettre, 2015, 7 (7) 250 – 255 (**Scopus**).
5. M. Yamuna, A. Elakkiya, Periodic Table in Medical Molecular Formula Safe Transfer, Der Pharmacia Lettre, 2015, 7 (8) 135 – 142 (**Scopus**).
6. M. Yamuna, A. Elakkiya, Unique γ - set in Data Encryption, Journal of Engineering and Interdisciplinary Research, 2015 2 (1), 16 – 21.
7. M. Yamuna, A. Elakkiya, Chemical Equation Representation as a Directed Graph, Der Pharmacia Chemica, 2015, 7 (9) 49 – 55 (**Scopus**).
8. M. Yamuna, A. Elakkiya, Amino Acid Graph Representation for Efficient Safe Transfer of Multiple DNA Sequence as Pre Order Tree, International Journal of Bio Informatics and Bio Medical Engineering, Vol 1 No 3, 2015, 292 – 299.
9. M. Yamuna, A. Elakkiya, Codons in Data Safe Transfer, International Journal of Engineering Issues, Vol. No 2, 2015, 85 – 90.
10. M. Yamuna, A. Elakkiya, Substitution Mutation Identification Using Matrix, Journal of Computer Science and Engineering, 2015, 2 (2) 1 – 4.
11. M. Yamuna, A. Elakkiya, A Brief Survey – Relating Graph Domination, Planarity on Graph Bounds,

International Journal of Pharmacy and Technology, March-2016 , Vol. 8 , Issue No.1 , 11151-11165 (**Scopus**).

12. M. Yamuna, A. Elakkiya, Just Excellent Graphs in Data Transfer, International Journal of Engineering Issues, Vol 2016, no. 1, pp 71 – 76.
13. M. Yamuna, A. Elakkiya, Identifying Deletion Mutation Using Matrix, International Journal of Progressive Sciences and Technologies, Vol. 2 No. 2 April. 2016, pp. 43-47.
14. M. Yamuna, A. Elakkiya, Development of Fault Tolerant Minimum Weighted Spanning Tree Using Vertex, Edge Connectivity, International Journal of Pharmacy and Technology, Vol 8, Issue 2 , 11810 – 11819 June – 2016 (**Scopus**).
15. M. Yamuna, A. Elakkiya, Non - Domination Subdivision Stable Graphs, IOP Conference Series, Materials Science and Engineering, 263, 2017, 1 – 13(**Scopus**).
16. M. Yamuna, A. Elakkiya, Planar Graph Characterization of NDSS Graphs, IOP Conference Series, Materials Science and Engineering 263,2017, 1– 9 (**Scopus**).
17. M. Yamuna, A. Elakkiya, Uniquely Colorable Graphs Containing a γ - Set, IOP Conference Series, Materials Science and Engineering, 263, 2017, (**Scopus**).
18. M. Yamuna, A. Elakkiya, Planar Graph Characterization of γ - Uniquely Colorable Graphs, IOP Conference Series, Materials Science and Engineering, 263, 2017, 1– 7 (**Scopus**).
19. M. Yamuna, A. Elakkiya, Mathematical Models in Drug Discovery, Development and Treatments of Various Diseases – A Case Study, Research Journal of Pharmacy and Technology, 10(12) 2017 , 1994 – 98.(**Scopus**).
20. M. Yamuna, A. Elakkiya, Planar characterization- Graph domination graphs, International Journal of Engineering and Technology,7(4.10),2018, 949- 55.(**Scopus**)
21. M. Yamuna, A. Elakkiya, G, complement of G properties - from complement of G, G, International Journal of Engineering and Technology, 7(4.10),2018, 1001 – 06 .(**Scopus**)
22. M. Yamuna, A. Elakkiya, Planar and non planar construction of gamma uniquely colorable graphs, International Journal of Engineering and Technology,7(4.10),2018, 998- 1000.(**Scopus**)
23. A. Elakkiya, M Yamuna, “ Chromatic Polynomial of Domination Subdivision Non Stable Graphs” , IJITEE , 8(12) , 2019. (**Scopus**).
24. Communicated a research paper titled “**A Graph-Theoretic Approach with Centrality Measures for Predicting Water Partition Coefficient of Rice Blast Pesticides**” to the Journal of Dalian University of Technology (**Scopus**).
25. Currently working on a Research Paper titled as “Just Excellent Graphs for Intelligent and Secure Hospital Network Architecture”.
26. Currently working on a Research Paper titled as “Verse Meet Vertex: A Discrete Mathematical

Modelling of Rhyme, Meter, and Rhetoric in Shakespeare's Sonnet 18.

27. Currently working on a Research Paper titled as "From Curriculum to Character: An LSDG – Based Approach to Sustainable Character Shaping.

Book Published

My Mathematical Journey – A Theoretical Approach towards Applications, Lab Lambert Academic Publishers, 2016.

Book Chapters

1. M. Yamuna, A. Elakkiya, γ - Chromatic Partition in Planar Graph Characterization, Trends in Mathematics, 461 – 468, 2019 (**Scopus, Springer**)
2. M Yamuna , A. Elakkiya and K.Karthika "Uniquely Colorable Graph in Data Transfer", International Scientific Research and Innovation Congress, Istanbul, August 26, 27, 2022.
3. M Yamuna, K.Karthika and A.Elakkiya " Data Encryption Using Rooted Graph", International Scientific Research and Innovation Congress, Istanbul, August 26, 27, 2022.
4. M Yamuna, A. Elakkiya " Decomposition of $G = (V, E)$ into separable graphs", International Scientific Research and Innovation Congress, Istanbul, August 10 – 12, 2024.
5. M Yamuna, M. Sivasankari, A. Elakkiya " A Domination based approach to Graph Based Cryptography", International Scientific Research and Innovation Congress, Istanbul, October 11 – 12, 2025.
6. T.Sowmya, A.Elakkiya, S.Sampath kumar "Art as a healing Feast" Proceedings IGEN Environthon 74 – 78, Dec 2025.

Workshop / FDP

1. Participated in a One - day "**workshop on Application of Differential and Difference Equations** ", conducted by Academic staff college of VIT University, Vellore on 9th of October 2015.
2. Participated in the Faculty development program "**Rubrics – J Component** ", conducted by Academic staff college of VIT University, Vellore on 13th of October 2015.

3. Participated in a one-day Workshop on **“Solving Challenging Experiments in Statistics for Engineers using R - Software”**, Academic staff college of VIT University, Vellore on 30th of December 2015.
4. Participated in Faculty Development Programme on **“Writing Effective Funded Project Proposal”**, conducted by Academic staff college of VIT University, Vellore on 27th of January 2015.
5. Participated in a two-day Workshop on **“Mathematical Application (WMA-2016)”**, organized by School Of Advanced Sciences (Department of Mathematics), VIT University, on 3-4th October 2016.
6. Participated in a one day workshop on **“Writing a Good Paper for an International Journal”**, organized by VIT University, on 27th October 2016.
7. Participated in a half -day Workshop on **“Linearization Techniques for non – linear BVPs and VargaAlgorithm ”**, Academic staff college of VIT University, Vellore on 28th of March 2018.
8. Participated in a two-day **“Workshop on Mathematical Applications - 2018 (WMA-2018)”**, organized by the Dept. of Mathematics, School of Advanced Sciences, VIT, Vellore on 5th and 6th of March 2018.
9. Participated in the **“National workshop on Applications of Operations Research, Statistics and Graph Theory”**, organized by the Dept. of Mathematics, School of Advanced Sciences, VIT, Vellore on 27th July, 2018.
10. Participated in International Webinar on **“ Domination in Graphs and its Application”** Organized by Department of Basic Science, Sree Venkateshwara College of Engineering, Bengaluru on 12th of December 2020.
11. Participated in the online **“National Conference on Mathematical Analysis and Computing (NCMAC–2021)**, Organized by Department of Mathematics, Sree Sevugan College, Devakottai, Sivagangai on 28th may 2021.
12. Participated in Virtual Workshop on **“ Scientific Documentation Through Latex**, Organised by PG and Research Department of Physics, Government College for Women (Autonomous), Kumbakonam on 27th February 2021
13. Participated in a **“Two Day Faculty Development Program on the Current Scenario in Applied Mathematics”** Organized by the Department of Science and Humanities of Hindustan College of Engineering and Technology, Pollachi Highway, Valley Campus, Coimbatore on 23rd and 24th April, 2021.
14. Participated in a **“Five Day National Faculty Development Program on the Recent Advances in Mathematics”** Organized by the Department of school of Advanced sciences VIT Vellore on 8th to 12th August, 2022.
15. Participated in a **“One Day National level workshop on Perceiving Calculus via Digital mode”** Organized by the Department of school of Advanced sciences VIT Vellore on 29th September, 2022.
16. Participated in a **“Five Day Faculty Development Program of Applicability of Mathematical science**

in Emerging world Organized by the Department of Mathematics, Science and Humanities of Sathyabama Institute of science and Technology, College of Engineering, Chennai on 7th to 12th August 2023.

17. Participated in a “**One Day International workshop on Exploring Molecules via Graph Theory**” Organized by the Department of school of Advanced sciences VIT Vellore on 8th September, 2023.
18. Participated in a “**Five Day Faculty Development Program on Exploring New Horizon in Mathematical Research**” Organized by PG and Research Department of Mathematics, V.O. Chidambaram College, Thoothukudi from 19th to 24th August 2024.
19. Participated in a “**Five Day Faculty Development Program on Research Methodology Ethics And Publications**” Organized by PG and Research Department of Mathematics, Theivani Ammal College for Women, Villupuram on 22rd Jan to 26th Jan 2024.
20. Participated in a “**Five Day Faculty Development Program on Exploring Real World Applications in Mathematics**” Organized by the Department of Mathematics, School of Basic Sciences, Vels Institute of Science, Technology and Advanced Studies, Chennai on 22nd to 26th April 2024.
21. Participated in a “**Five Day Faculty Development Program on Latest Trends on Computational Mathematics - Theory, Methods & Applications**” Organized by the Department of Mathematics, JIS University, Chennai on 26th Feb to 1st March 2024.
22. Participated in a “**Five Day Faculty Development Program on Recent Frontiers in Pure and Applied Mathematics**” Organized by the Department of Mathematics, Kongunadu Arts and Science College, Coimbatore on 11th Nov to 15th Nov 2024.
23. Participated in a “**Five Day Faculty Development Program on Exploring New Frontiers in Teaching Tools, AI and Data Analytics**” Organized by the MEASI Institute of Information Technology, Royattah, Chennai on 29th July to 2nd Aug 2024.
24. Participated in a “**Seven Day Faculty Development Program on Various Aspects of Computational Modelling**” Organized by PG and Research Department of Mathematics, Theivani Ammal College for Women, Villupuram on 3rd Jan to 9th Jan 2025.

List of Conference presented

1. M Yamuna and A. Elakkiya, “Planar Graph in Data Encryption”, International Conference on Recent Trends in Engineering Science and Management, 15 March 2015.
2. M Yamuna and A. Elakkiya, “Development and Analysis of Fault Tolerant Algorithms for Spanning Trees of a Computer Network”, International Conference on Science, Technology and Management, 1 Feb 2015.
3. M Yamuna and A. Elakkiya, “ G , \bar{G} Properties from G , \bar{G} ”, NCPAM, 12 March, 2015.

4. M Yamuna and A. Elakkiya , “Non - Domination Subdivision Stable Graphs”, International Conference on Science, Engineering and Technology, VIT University, 2nd May, 2017.
5. M Yamuna and A. Elakkiya , “Planar Graph Characterization of NDSS Graphs”, International Conference on Science, Engineering and Technology, VIT University, 2nd May, 2017.
6. M Yamuna and A. Elakkiya , “Uniquely Colorable Graphs Containing a γ - Set”, International Conference on Science, Engineering and Technology, VIT University, 2nd May, 2017.
7. M Yamuna and A. Elakkiya , “Planar Graph Characterization of γ - Uniquely Colorable Graphs”, International Conference on Science, Engineering and Technology, VIT University, 2nd May, 2017.
8. M Yamuna and A. Elakkiya , “ γ - Uniquely Colorable Graphs Planar Characterizations”, International Conference on Advances in Mathematical Sciences, VIT, Dec 1 – 3, 2017.
9. M Yamuna , A. Elakkiya and K.Karthika “Uniquely Colorable Graph in Data Transfer”, International Scientific Research and Innovation Congress, Istanbul, August 26, 27, 2022.
10. M Yamuna , A. Elakkiya and K.Karthika “ Data Encryption Using Rooted Graph”, International Scientific Research and Innovation Congress, Istanbul, August 26, 27, 2022.
11. M Yamuna , A. Elakkiya “ Decomposition of $G = (V, E)$ into separable graphs”, International Scientific Research and Innovation Congress, Istanbul, August 10 – 12, 2024.
12. A. Elakkiya “ A Domination based approach to Graph Based Cryptography”, International Scientific Research and Innovation Congress, Istanbul, October 11 – 12, 2025.
13. A. Elakkiya “From Simple to secure: A Complex Substitution Cipher For Symmetric Encryption ”, International Scientific Research and Innovation Congress, Istanbul, October 11 – 12, 2025.

Certification

1. Certificate courses in Panchayat Administration and Rural Development Schemes

State Institute of Rural Development and Panchayat Raj, Government of Tamil Nadu, **Grade A+**, September 2025

2. NPTEL Courses

- Graph Theory – 8 weeks, **Elite Silver**, 2025
- Technical Communication for Engineers – 4 weeks, **Elite Silver**, 2025
- Discrete Mathematics – 12 weeks, **Elite**, 2025
- Teaching and Learning in General Programs:TALG – 8 weeks, **Elite**, 2025
- Introduction to abstract Group Theory – 8 weeks, **Elite**, 2025

