

## Dr. USHA P

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### Education

	Degree	Year	Institute	Specialization
1	M.Sc	1996	Bangalore University	Mathematics
2	M.Phil	1998	Bangalore University	Graph Theory
3	Ph.D	2007	Bangalore University	Graph Theory

### Professional Experience

	Date (from-to)	Designation	Organization
1	05/09/2008 – till date	Professor	Siddaganga Institute of Technology
2	18/09/2007 – 04/09/2008	Assistant Professor	Siddaganga Institute of Technology
3	06/10/1999 – 17/09/2007	Lecturer	Siddaganga Institute of Technology

*(Please fill in reverse order. Current designation should be at the top)*

### Positions held

*(Please give details of any administrative posts, co Ordinator roles/ responsibilities held)*

	Position	Date (from-to)
1	Deputy Warden	2007-2009
2	Head of the Department	2012-01/01/2019
3	Chief Warden	01/05/2019- till date
4	Head of the Department	6/01/2025 –till date

### Affiliations of Professional organizations

- Life member of Academy of Discrete Mathematics and Applications
- Life member of Ramanujan Mathematical Society

#### Awards and Honors

- NIL

#### Courses Taught

##### Undergraduate Courses

- Engineering Mathematics-I
- Engineering Mathematics-II
- Engineering Mathematics-III
- Engineering Mathematics-IV
- Mathematical concepts for Information Technology
- Statistics and probability for Engineering
- Discrete Mathematical structures
- Linear algebra
- Data Analytics
- Graph Theory and Combinatorics
- Probability and its Applications for Information Technology

##### Postgraduate Courses

- Operation Research

#### Research Guidance

Sl. no	Name of the Scholar	Title	Year of completion
1	Girish V	Graph Theory	2020
2	Supriya. D	Graph Theory	On going
3	Nandish.N.S	Graph Theory	On going
4	Anjana N	Mathematical Modeling	On going

#### Research Areas

- Graph Theory
- Mathematical Modeling

#### Sponsored Projects

##### Ongoing Projects:

1. Title:

Funding Agency:

NIL

Amount:

Duration:

Role:

Completed Projects:

1. Title:

Funding Agency: NIL

Amount:

Duration:

Role:

## Publications

### Journals

- Image Neighbourhood graph of a graph, The Mathematics Education, Siwan, Bihar, XXXVI, No.2, (2002) 92-99.
- Domination in semitotal block graphs, Bulletin of Pure and Applied Sciences, New Delhi, 23E(1) (2004) 195-202.
- Semitotal block nonsplit domination in Graph, Journal of analysis and computation, 1(2005)31-37.
- Semitotal block split domination in Graphs, Journal of applied Mathematical analysis & application, New Delhi, 2, (2006) 199-211.
- Entire Total Block Domination in Graphs, Journal of Analysis and Computation, New Delhi, Vol.6,(2010) 53-58.
- Total Block Domination in Graphs, Journal of Analysis and Computation, New Delhi, Vol.6,(2010) 85-90.
- Application of Mathematical Model for Assessment of Interface Heat Flux of the Mold during Gravity Die casting, International Journal of Engineering and Innovative Technology(IJEIT), Vol2, Issue 6, Dec 2012, 357-361, ISSN:2277-3754.
- Total domination in Lict Graphs, International Journal of Mathematical combinatorics, Vol 1, 2014, 19-27, ISSN:1937-1055.
- Algorithmic aspects and NP completeness of total domination in Lict graphs, International Journal of Mathematical combinatorics, Vol 1, 2014, 80-86, ISSN:1937-1055.
- Numerical simulation of Boundary Heat Flux Transients and Thermal Field of the Mould during Gravity Die-Casting, Sciverse Science Direct, Procedia Material Science, 2014(online), Elsevier Publications.
- Effect of Metal-Mold Interface Heat Flux on the Tribological behavior of Aluminum-Boran Carbide Composites, International Journal of Applied Engineering Research, ISSN 0973-4562, Vol.10, No.11 (2015), Research India Publications. Pg 10296-10300.

- Modeling of Interface Heat Flux and Thermal Field of Mold materials during Gravity Die casting, Material Engineering and smart materials, Materials Science Forum, Trans Tech Publications, ISSN:1662-9752, Switzerland, Vol.895, 2017, doi:10.4028/[www.scientific.net/MSF.895](http://www.scientific.net/MSF.895).85, Pg 85-88.
- Graphical Model for Interlinking of two major Indian rivers: Ganga and Mahanadi, International Journal of Mechanical And Production Engineering, ISSN:2320-2092(P), 2321-2071(O), Vol.5, Issue.6, August 2017, DOI : IJMPE-IRAJ-DOI-8493, Pg.92-94.
- Nonsplit Domination Edge Critical Graphs, Bulletin of the International Mathematical Virtual Institute, ISSN (p) 2303-4874, ISSN(o)2303-4955, [www.imvibl.org/JOURNALS/BULLETIN](http://www.imvibl.org/JOURNALS/BULLETIN), Vol.8(1), (online August 2017) 2018, 161-168, DOI:10.7251/BIMVI1801161G.
- Non-Split domination subdivision critical graphs, Notes on Number Theory and Discrete Mathematics, Print ISSN 1310-5132, online ISSN 2367-8275, Vol.23, October 2017, No.3, 123-132.
- Secure domination in Lict graphs, Open journal of Mathematical Sciences, Vol.2 (2018), No.1, pp.133-144. ISSN 2523-0212.
- Roman edge semi-total block domination of a graph, Asia Pacific Journal of Mathematics, Vol.5, No.2 (2018), 139-150. ISSN 2357-2205.
- Split Domination of Cartesian product graphs, Palestine Journal of Mathematics, Vol.8(2) (2019), 348-354. ISSN: 2219-5688.
- Split Domination vertex and edge critical Graphs, Journal of the Indonesian Mathematical Society, Vol.26, No.1 (2020), pp.55-63, Print ISSN:2086-8952, Online ISSN: 2460-0245, DOI:10.22342.
- Hyper-Zagreb indices of graphs and its applications, Journal of Algebra combinatorics Discrete Structures and Applications. Vol.8, No.1 (2020), pp.9-22, ISSN 2148-838X, doi:10.13069/jacodesmath.867532.
- Computing the split domination number of grid graphs, Indonesian Journal of combinatorics, Vol.5(1) (2021), pp.1-10. ISSN:2541-2205, DOI:10.19184/ijc.2021.5.1.1.
- The minimum nonsplit domination energy of a graph, Bulletin of the International Mathematical Virtual Institute, Vol.11(3) (2021), pp. 583-596, ISSN(p) 2303-4874, ISSN(O) 2303-4955, DOI:10.7251/BIMVI2103583G.
- Adsorption of fluoride and DB-53 dye onto PLA/rGO nanoparticles: Mathematical modeling and statistical studies, Journal of Water Process Engineering, Vol.44 (2021), pp.1-13, ISSN 2214-7144, doi: 10.1016/j.jwpe.2021.102447.
- Protection of a network by complete secure domination, Journal of Algebra Combinatorics Discrete Structures and Applications, Vol.9(1), pp.47-55, 2022 ISSN 2148-838X, doi:10.13069/jacodesmath.1056581.

- Soft Graph on a minimal edge dominating set, Informatics Journal of Mines, Metals and Fuels, Vol. 71(12D), 2023, pp. 213-220, DOI:10.18311/jmmf/2023/47292.
- An Estimation of Cordial Label-Based Topological Indices VIA QAPR Analysis for Heart Attack Medication Treatment, African Journal of Biological Science, Vol.6(4), PP 5398-5419, 2024, ISSN:2663-2187 DOI:10.48047/AFJBS.6.Si4.2024.5398-5419.
- QSPR Analysis on Bone Marrow Cancer Medications via Topological Indices and Regression Model, African Journal of Biomedical Research, vol.27, No.1S, 2024, pp 296-308, DOI:10.53555/AJBR.V27i1S.1199.
- Investigating the characteristics of Anti-Malarial Drugs by Cordial Label-Based Topological Indices, African Journal of Biomedical Research, vol.27, No.3S, 2024, pp. 4271-4283, DOI:10.53555/AJBR.V27i3S.3149.
- Soft Graph on Distance-2 of a minimal dominating set of a graph, International journal of Information Technology, Vol.17, issue-1, 2025, DOI:10.1007/s41870-024-02372-1.

#### Conference Proceedings

- Image neighbourhood domination in graphs, Proceedings of National Conference on Geometry, Analysis, Fluid Mechanics and Computer Applications, Kuvempu University, Shimoga, (2004) 42-49
- Graphical Model for interlinking of two major Indian Rivers: Ganga and Mahanadi, Proceedings of the IER International conference, Singapore ISBN-978-93-86083-34-0 organized by IEEE forum April 2017

#### Book Chapters

- NIL

#### Books

- NIL

#### Editorial

- NIL

#### Reviewer of Journals

- NIL

*(Please give details in IEEE format)*

Editor/ Reviewer of Journal
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- NIL

## Patents

- NIL

## Invited Lectures, talks and workshops

Sl. No.	Title	Date	Institute/ Department
1	Obtaining an optimal solution of a Linear programming problem using Graphical Method	11/08/2015	Vidya Vahini First Grade college, Tumkur
2	Obtaining an optimal solution of a Linear programming problem using Simplex Method	1/09/2015	Vidya Vahini First Grade college, Tumkur
3	Applications of Mathematics in Engineering	31/03/2017	ACS college of Engineering, Bangalore
4	Graph Theory and its Applications	24/04/2017	Osmania University, Hyderabad
5	Joint probability, Combinatorics, Applications of Operation Research, calculus of variations (4 lectures of one and half hrs each)	19/07/2017 , 20/07/2017	Resource person for two days for refresher course at Pondicherry University, Pondicherry
6	Graph Theory and Applications	17/07/2020	Department of Mathematics, Pondicherry University, Pondicherry.
7	Graph Theoretical model of Interlinking of Rivers	16/12/2024 – 18/12/2024	5 <sup>th</sup> International conference on Science, Engineering, Technology and Social Sciences (ICSETS-2024) Kuriakose Elias College, Mannanam, Kottayam, Keralam.