Karnataka University's

KARNATAK SCIENCE COLLEGE, DHARWAD

P. G. DEPARTMENT OF MATHEMATICS

IQAC initiative

Special Lecture on

"Strategies for NET, SET and GATE Examinations"

December 16, 2024

Chief Guest & Resource Person

Dr. Ashoka K.

Assistant Professor

Department of Mathematics

Christ Deemed to be University, Banglore

Special Invitee

Dr. R. Y. Budihal

Academic Dean

Karnatak Science College, Dharwad

President

Prof. (Smt.) M. S. Salunke

Principal

Karnatak Science College, Dharwad

Presence

Dr. Blaise Lobo

Co-ordinator

IQAC, Karnatak Science College, Dharwad

Convenor

Dr. B. Parvathalu

Head

P. G. Department of Mathematics,

Karnatak Science College, Dharwad

Date: 16-12-2024

Time: 02.30 pm

Venue: P. G. Dept. of Mathematics, Karnatak Science College, Dharwad

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ALL ARE CORDIALLY INVITED

Students, Teaching and Non-teaching staffs

P. G. Dept. of Mathematics, Karnatak Science College, Dharwad

KARNATAK SCIENCE COLLEGE, DHARWAD
(Constituent Science College of Karnatak University, Dharwad)
P. G. Department of Mathematics

Activity Report

General Information

Type of Activity	**A Special Lecture**
Title of the Activity	**Strategies for NET, SET and GATE Examinations**
Date/s	**16, December 2024**
Time	**2:30 PM to 4:30 PM**
Venue	**Lecture Hall - 1, P. G. Department of Mathematics, Karnatak Science College, Dharwad**
Collaboration/Sponsor (if any)	**IQAC and P. G. Department of Mathematics, Karnatak Science College, Dharwad.**

Speaker/Guest/Presenter Details

Name	**Dr. Ashoka K.**
Title/Position	**Assistant Professor, Department of Mathematics, Christ Deemed to be University, Banglore**
Organization	**Christ Deemed to be University, Banglore**
Title of Presentation	**Strategies for NET, SET and GATE Examinations**

Participants profile

Type of Participants	**PG Students & Faculty**
No. of Participants	**76 Students**

Synopsis of the Activity (Description)

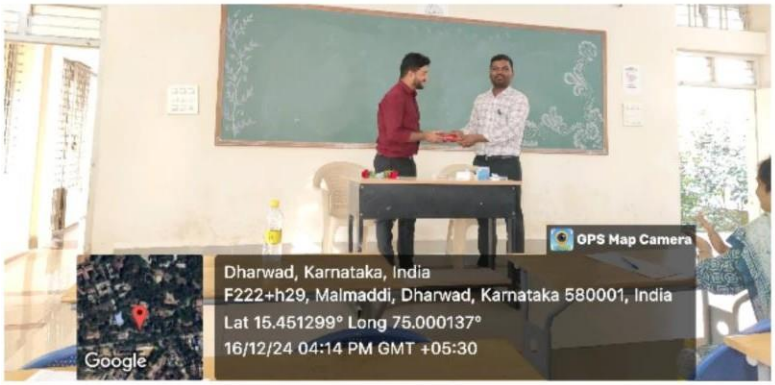
Highlights of the Activity	1. **Understanding the Examination Pattern** **Dr. Ashoka emphasized the importance of thoroughly understanding the syllabus, question patterns, and weightage of topics for NET, SET, and GATE. He suggested a systematic approach to identifying high-priority areas.** 2. **Time Management and Planning** **He shared detailed strategies for managing time effectively during both preparation and the examination. This included creating a realistic study timetable and the use of techniques**

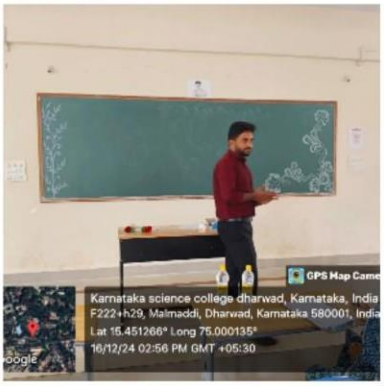
	like the Pomodoro method for sustained focus. 3. Effective Study Techniques The lecture included insights on active learning strategies, such as taking concise notes, using mind maps, and practicing with previous years' question papers. He also stressed the role of revision in retaining information.
Key Takeaways	1) A significant portion of the talk focused on subject-wise preparation tips, particularly for conceptual clarity and problem-solving techniques, which are critical for NET, K-SET and GATE. Dr. Ashoka also addressed overcoming exam anxiety by recommending mindfulness practices and maintaining a healthy lifestyle. He emphasized the use of technology, including online resources and discussion forums, to enhance learning and stay updated with changes in exam patterns or notifications. 2) Dr. Ashoka's motivational words inspired students to approach their preparation with consistency, focus, and confidence. The event was well-received and left aspirants with a clear roadmap to tackle the challenges of NET, K-SET, and GATE exams effectively.
Summary of the Activity	Dr. Ashoka, delivered an enlightening lecture on "Strategies for NET, K-SET, and GATE Examinations". The session aimed to equip aspirants with effective methods to prepare for these highly competitive exams. With his vast experience in mentoring students. Dr. Ashoka provided actionable insights and tailored advice to help participants achieve their goals. He outlined the importance of understanding the exam pattern, syllabus, and previous trends while creating personalized study plans that include regular revisions and mock tests. In addition, he addressed overcoming exam anxiety through mindfulness and healthy lifestyle practices, inspiring aspirants to maintain confidence and consistency. The session concluded with an interactive Q&A segment, leaving participants motivated and equipped with actionable strategies for success.
Follow-up plan, if any	Based on student feedback, the Department of Mathematics plans to organize mathematics workshops and provide additional support for students to get through competitive exams.

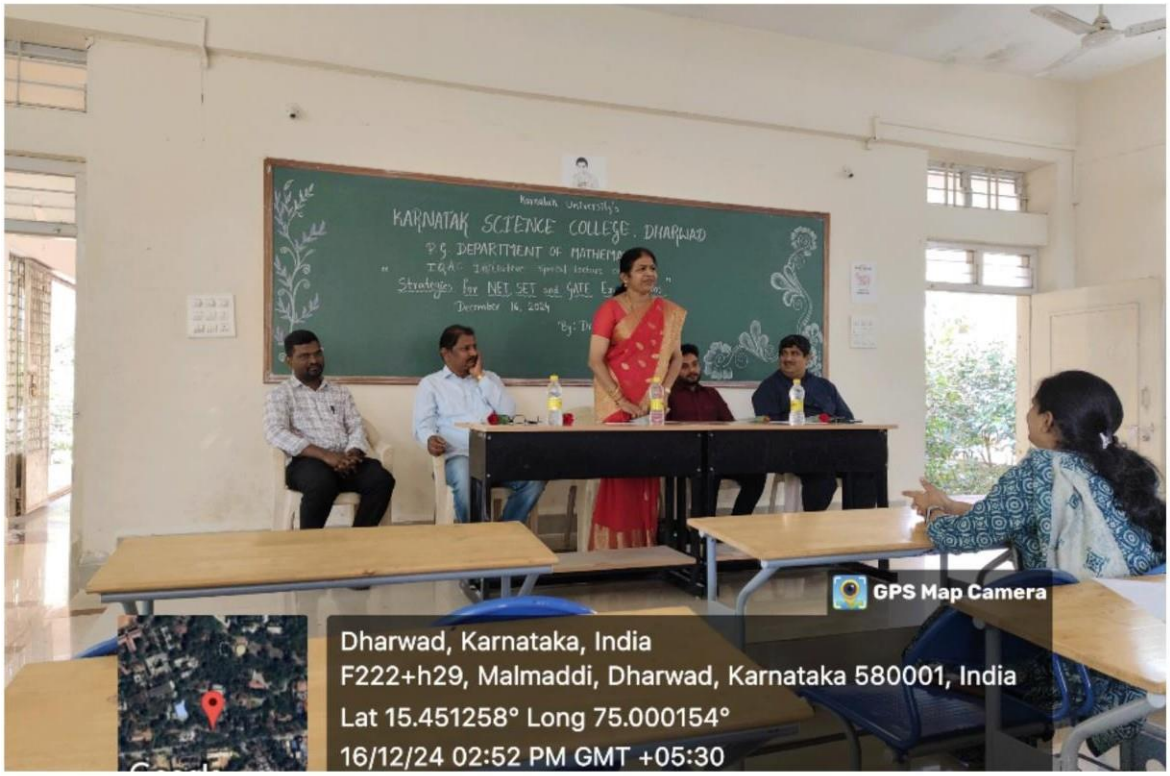
Rapporteur

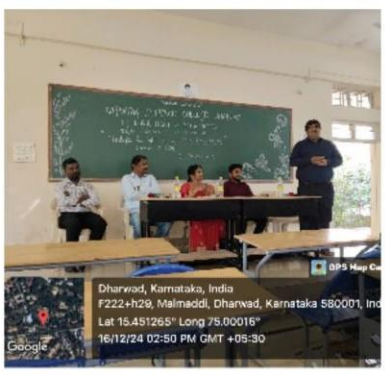
Name of the Rapporteur	**Dr. B Parvathalu, HoD, Department of Mathematics**
Email and Contact No	**+91 8310780321 (headmathkcd@gmail.com)**

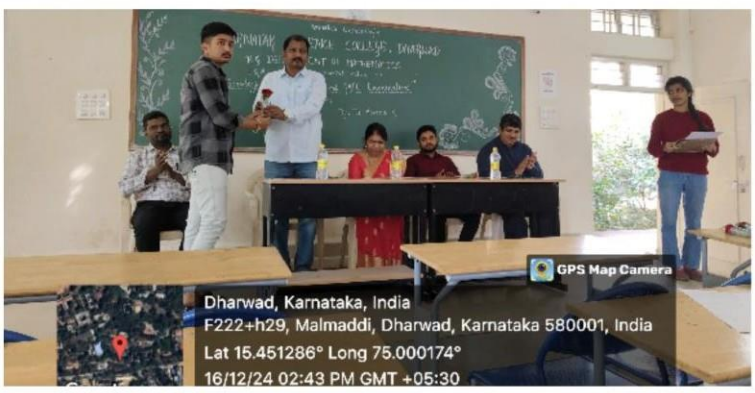
IQAC initiative, Special Lecture on "Strategies for NET, SET and GATE Examinations











Overview of the Event:

The special lecture on "Strategies for NET, K-SET, and GATE Examinations," delivered by Dr. Ashoka, was a highly informative session designed to guide aspirants preparing for these competitive exams. The event aimed to provide students with effective strategies to enhance their preparation, offering insights into the exam patterns, syllabus, and key topics. The lecture also emphasized the importance of time management, regular revisions, and mock tests, ensuring a structured approach to tackling these challenging exams.

Dr. Ashoka not only focused on academic preparation but also addressed the mental and emotional aspects of exam preparation. He encouraged students to adopt a growth-oriented mindset, manage exam anxiety, and maintain a healthy lifestyle. Additionally, the session highlighted the importance of using technology and online resources to supplement learning. The event concluded with a Q&A session, where Prof. Ashoka answered participants' queries, leaving them motivated and better equipped to succeed in the NET, K-SET, and GATE exams.

Program Execution:

- **Anchors:**
  1. Ms. Steffy Gamma (M. Sc. III Semester)
- **Welcome Address:**
  Dr. B. Parvathalu, Head, UG & PG Department of Mathematics
- **Guest Introduction:**
  Ms. Priya . (M. Sc. III Semester)
- **Presidential Remarks:**
  Prof. M. S. Salunke, Principal, Karnatak Science College, Dharwad
- **Vote of Thanks:**
  Mr. Shravan Banni, Class Representative, M. Sc. III Semester.

Acknowledgments:

The Department of Mathematics extends its heartfelt gratitude to Dr. Ashoka K., for his invaluable contributions to the program. Special thanks are also due to Prof. M. S. Salunke, Prof. R. Y. Budihal and Dr. Blaise Lobo for their unwavering support and encouragement. The department appreciates the efforts of all faculty, staff, and students whose dedication and hard work ensured the success of the event.

Ashoka K

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ORCID

EDUCATION

Christ University — Bangalore, India
Assistant Professor, Dept. of Mathematics — December, 2022–Current

Karnatak University — Dharwad, India
Ph. D., Supervisor: Prof. H. S. Ramane — July, 2022

- Thesis: "Study on Spectra of Graphs"

Karnatak University — Dharwad, India
M. Sc. in Mathematics, Percentage: 87.33% — July, 2014

Karnatak University — Dharwad, India
B. Sc. (Physics, Mathematics, Statistics), Percentage: 87.61% — June, 2012

SCHOLARSHIPS AND AWARDS

- Karnatak University Research Scholarship — 2018–2020
- Karnataka State Eligibility Test for Lectureship (KSET) — 2016
- Seed Money Project — 2024–Present

PUBLICATIONS

[1] H. S. Ramane, B. Parvathalu, and K. Ashoka, "An upper bound for difference of energies of a graph and its complement", *Examples and Counterexamples*, vol. 3, 2023 DOI: 10.1016/j.exco.2023.100100.

[2] H. S. Ramane, B. Parvathalu, and K. Ashoka, "Energy of complements of certain double graphs", *South East Asian J. of Mathematics and Mathematical Sciences*, vol. 21, pp. 217–232, Proceedings (2022), ISSN: 2582-0850.

[3] H. S. Ramane, B. Parvathalu, K. Ashoka, and S. Pirzada, "On families of graphs which are both adjacency equienergetic and distance equienergetic", *Indian J Pure Appl Math*, 2022 DOI: 10.1007/s13226-022-00355-1.

[4] H. S. Ramane, B. Parvathalu, and K. Ashoka, "Energy of complements of certain double graphs", *South East Asian J. of Mathematics and Mathematical Sciences*, vol. 21, pp. 217–232,

[5] H. S. Ramane, B. Parvathalu, K. Ashoka, and D. Patil, "Some relations between energy and seidel energy of a graph", *Acta Universitatis Sapientiae, Informatica*, vol. 15, no. 1, pp. 46–59,

[6] H. RAMANE, D. PATIL, B. PARVATHALU, and K. ASHOKA, "Signless laplacian polynomial for splice and link of graphs",

[7] D. Patil, H. Ramane, B. Parvathalu, and K. Ashoka, "Various polynomials associated to graphs involving splice and link structures", *Annals of Mathematics and Computer Science*, vol. 15, pp. 56–69, 2023.

[8] H. S. Ramane, D. Patil, K. Ashoka, and B. Parvathalu, "On spectral polynomial of splices and links of graphs", *Bol. Soc. Parana. Mat. (3)*, vol. 41, p. 8, 2023, ISSN: 0037-8712.

[9] H. S. Ramane, B. Parvathalu, and K. Ashoka, "Energy of extended bipartite double graph", *MATCH Commun. Math. Comput. Chem*, vol. 87, pp. 653–660, 2022, ISSN: 0340-6253.

[10] H. S. Ramane, B. Parvathalu, and K. Ashoka, "Energy of strong double graphs", *J. Anal.*, vol. 30, no. 3, pp. 1033–1043, 2022, ISSN: 0971-3611.

[11] H. S. Ramane, K. Ashoka, B. Parvathalu, and D. Patil, "On a-energy and s-energy of certain class of graphs", *Acta Univ. Sapientiae, Informatica*, vol. 13, no. 2, pp. 195–219, 2021, ISSN: 2066-7760.

[12] H. S. Ramane, B. Parvathalu, and K. Ashoka, "Seidel energy of k-fold and strong k-fold graphs", *Commun. Combin., Cryptogr. Computer Sci.*, vol. 1, pp. 152–159, 2021.

[13] H. S. Ramane, K. Ashoka, D. Patil, and B. Parvathalu, "On the Seidel Laplacian and Seidel signless Laplacian polynomials of graphs", *Kyungpook Math. J.*, vol. 61, no. 1, pp. 155–168, 2021, ISSN: 1225-6951.

[14] H. S. Ramane, D. Patil, K. Ashoka, and B. Parvathalu, "Equienergetic graphs using Cartesian product and generalized composition", *Sarajevo J. Math.*, vol. 17(30), no. 1, pp. 7–21, 2021, ISSN: 1840-0655.

[15] H. S. Ramane and K. Ashoka, "Harary energy of complement of line graphs of regular graphs", *Commun. Fac. Sci. Univ. Ank. Ser. A1. Math. Stat.*, vol. 69, no. 2, pp. 1215–1220, 2020, ISSN: 1303-5991.

[16] H. S. Ramane, K. Ashoka, B. Parvathalu, and D. Patil, "Adjacency and seidel polynomial of splice and link of certain graphs", *Mathematical Forum*, vol. 28, pp. 68–86, 2020, ISSN: 0972-9852.

[17] H. S. Ramane, K. Ashoka, B. Parvathalu, D. Patil, and I. Gutman, "On complementary equienergetic strongly regular graphs", *Discrete Math. Lett.*, vol. 4, pp. 50–55, 2020.

[18] H. S. Ramane, D. Patil, B. Parvathalu, and K. Ashoka, "Construction of distance equienergetic graphs through generalized composition", *J. Adv. Math. Stud.*, vol. 13, no. 1, pp. 35–41, 2020, ISSN: 2065-3506.

[19] H. S. Ramane, B. Parvathalu, D. Patil, and K. Ashoka, "Graphs equienergetic with their complements", *MATCH Commun. Math. Comput. Chem*, vol. 82, no. 2, pp. 471–480, 2019, ISSN: 0340-6253.

[20] H. S. Ramane, D. Patil, K. Ashoka, and B. Parvathalu, "Harary spectrum of generalized composition of graphs and Harary equienergetic graphs", *J. Algebra Relat. Topics*, vol. 7, no. 2, pp. 31–45, 2019, ISSN: 2345-3931.

PRESENTATION/WORKSHOPS

- Workshop on Introduction to Spectral Graph Theory, organized by IIT Ropar, Rupnaga — November 2019
- Oral presentation at International Conference on Recent Trends in Mathematics and Its Applications to Graphs, Networks and Petri Nets, organized by School of Computational and Integrative Sciences, Jawaharlal Nehru University, New Delhi — July 2020
- Oral presentation at International Conference on Discrete Mathematics and its Application to Network Science, organized by Birla Institute of Technology and Science Pilani, K K Birla Campus, Goa — July 2018
- Oral presentation at International Conference on Number Theory and Graph Theory, organized by Mysore University, Mysore — June 2019
- Oral presentation at International Conference on Recent Trends in Graph Theory, organized by Department of Mathematics, Karnatak University, Dharwad — July 2020

- Oral presentation at International Conference on Present Scenario of Mathematical Sciences, organized by Karnataka University's Karnatak Arts College, Dharwad September 2020

- Oral presentation at Virtual International Conference on Discrete Mathematics, organized by Mangalore University, Mangalagangothri and Academy of Discrete Mathematics and Applications February 2021

- Oral presentation at 37^{th} Annual Conference of Ramanujan Mathematical Society, organized by Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam, Chennai, Tamil Nadu December 2022

- Oral presentation at GCGN workshop 2023, organized by Department of Mathematics, University of Malta, Msida MSD 2080, Malta March 2023 Youtube

- Chaired the session at the International Conference on Mathematical Analysis and its Applications, organized by the Department of Mathematics, Karnatak University, Dharwad, Karnataka August 2024

- Oral presentation at the International Conference on Mathematical Analysis and its Applications, organized by the Department of Mathematics, Karnatak University, Dharwad, Karnataka August 2024

EXTRACURRICULAR ACTIVITIES

- Member at IAENG (International Association of Engineers Group) Hong Kong 2020–Current

- Delivered a lecture on Algebra and its Application in the one-day workshop on analysis and applications of Mathematics, organized by the Department of Mathematics, K. L. E. Society's G. H. Degree College, Haveri 2024

- Organizing committee member in the International Conference on Present Scenario of Mathematical Sciences, organized by the Department of Mathematics, Karnatak University's Karnatak Arts College, Dharwad 2020

- Organizing committee member in the International Conference on Graph Theory and its Applications, organized by the Department of Mathematics, CHRIST (Deemed to be University), Bangalore 2023

- Speaker in National Level Special Lectures on GATE, NET and K-SET Examinations, organized by the Dpt of Mathematics, Karnatak University, Dharwad 2024

- Delivered a lecture on Preparation of JAM Exam-2025 for B. Sc students, organized by the Department of Mathematics, Shri Shivayogi Murugendra Swamiji Arts, Science and Commerce College Athani 2024

- Delivered a lecture on Finite groups and it's Applications, organized by the Department of Mathematics, JAIN (Deemed to be University), Bangalore 2023

- Delivered a lecture on JAM-Exam in Mathematics, organized by the Department of Mathematics, KLE Society's G. I. Bagewadi, Arts, Science and Commerce College, Nipani 2022

- Delivered a lecture on Preparation of UGC CSIR NET Examination and some basic concept of linear algebra, organized by the Department of Mathematics, M. M. Arts and Science College, Sirsi 2021

- Delivered a lecture on Divising towards JAM/GATE Examinations, organized by the Department of Mathematics, P. C. Jabin Science College, Hubballi 2020

- Delivered a lecture on How to prepare for IIT-JAM Examination in Mathematics, organized by the Department of Mathematics, S. T. C. Arts, Commerce BBA and BCA College Banhatti 2020

- Delivered a lecture on Preparation of JAM Examination and Brief Introduction of finite Group, organized by the Department of Mathematics, KLE Society's Basavaprabhu Kore Arts, Science and Commerce college, Chikodi 2020

- Special talk on Preparation of NET/K-SET/JAM Examination, organized by the Department of Mathematics, B.L.D.E.Association's Commerce, B. H. S. Arts T. G. P. Science college, Jamakhandi 2020

- Special talk on How to prepare for JAM/TIFR/PG Entrance Exams, organized by the Department of Mathematics, KLE Society's Raja Lakhamagouda Science Institute (Autonomous), Belgaum 2019

- Special talk on How to prepare for JAM/IISc/IIT/BITS/TIFR/PG Entrance Exams And Introduction of Group Z_n, organized by the Department of Mathematics, Govt First Grade College, Hirekerur 2019

- SSpecial talk on Preparation of NET/K-SET/JAM Examination, organized by the Department of Mathematics, Jagadguru Tontadarya College, Gadag-Betgeri 2019

- Special talk on Preparation of JAM (Joint Admission Test for Masters) Examination, organized by the Department of Mathematics, JSS Banashankari Arts, Commerce S. K. Gubbi Science College, Vidyagiri, Dharwad 2018

- Special talk on Preparation of JAM Examination and Brief Introduction of finite Group Zn, Vector Space, organized by the Department of Mathematics, P. C. Jabin Science College, Vidyanagar, Hubballi 2018

RESEARCH EXPERIENCE

- **Working on Spectral graph theory**
- Characterized the strongly regular graphs which are complementary equienergetic
- Investigated some class of graphs which are equienergetic with their complements
- Studied the orderenergetic and borderenergetic graphs
- Obtained some class of equienergetic graphs using standard graph products
- Equienergetic (particularly adjacency, Seidel and distance-based matrices) graphs has constructed using generalized composition through equitable partition
- Several iterated line graphs $L^k(G)$ with all equal negative eigenvalues -2 are characterized
- Seidel eigenvalues and Seidel energy of these iterated line graphs have been studied. Interestingly many graphs have exactly two positive Seidel eigenvalues with different multiplicities
- Studied the relations between the energy and the Seidel energy of a graph in terms of different graph parameters
- Obtained the Seidel Laplacian and Seidel singless Laplacian polynomial in terms of Seidel polynomial
- Investigated the energy and distance energy of graphs and their complements (Extended bipartite double cover, Strong double graphs, Double graphs) and constructed a large class of equienergetic graphs

TEACHING EXPERIENCE

- **I have extensive teaching experience in mathematics, including Linear Algebra, Abstract Algebra, Real and Complex Analysis, Operations Research, Discrete Mathematics, Graph Theory and Differential Equations, focusing on both theory and applications. My teaching approach prioritizes**

conceptual clarity and analytical thinking, equipping students to master mathematical concepts effectively.

- **I have significant experience training students for competitive exams like CSIR-NET, K-SET, GATE, and IIT-JAM, with a proven track record of success. Over 40 of my students have cleared KSET, 10 have qualified NET, and more than 50 have excelled in IIT- JAM**
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