Dr V Madhukar Mallayya

1.	Name	Dr. V. Madhukar Mallayya
2.	Address (Res)	Padmasree, TC 25/1974 (2), MELTRA, A-23 Near Gandhari Amman Kovil, Thiruvananthapuram, Kerala, Pin: 695001
3.	Email	mmallayyav@gmail.com; hodmaths@mcet.ac.in
4.	Contact No	6282833563
5.	Qualifications	MSc, MPhil, PhD (Mathematics)
6.	Areas of interest	Numerical Analysis, Operations Research, Optimization, Infinite Series & Series Approximations, Methodology and motivations in Indian Mathematics (in general) & Kerala Mathematics (in particular), Vedic Mathematics & Speed Mathematics, Analysis of Magic Squares & Strongly Magic Squares
7.	Affiliation	Professor & Head, Department of Mathematics, Science & Humanities, Mohandas College of Engineering & Technology, Anad, Trivandrum. Retired from the Mar Ivanios College, Trivandrum on 30 June 2012 as the Head of the DST-FIST sponsored Post Graduate & Research Department of Mathematics after completing 31 years of continuous service in the Mar Ivanios College including the first two years of service in St John's College, Anchal. After retirement joined Mohandas College of Engineering & Technology on 4 July 2012 as Professor & Head of the Department of Mathematics, Science & Humanities.
8.	Experience	44 years
9.	Experience as HoD	 17 years 4 years (Mar Ivanios College, Trivandrum) 13 years (Mohandas College of Engineering & Technology, Anad)

10. No. of PhDs produced and Name of Research Scholars

- 4
- ➤ Dhanya Ramachandran (Spline Interpolation, Numerical Analysis)
- **Kumari Sreeja S Nair** (Infinite Series)
- > Sreeranjini K.S (Magic Squares)
- ➤ Neeradha C.K (Strongly Magic Squares)

11. Research Project Completed:

Research Associate for a three year International collaborative research project on Kerala Mathematics (2002 – 2005) sponsored by the 'Arts and Humanities Research Board', United Kingdom (AHRB – UK), and University of Exeter, UK coordinated by Dr. George Gheverghese Joseph, Manchester Institute of Mathematical Sciences (MIMS), School of Mathematics, University of Manchester, UK.

12. Awards and recognitions:

- Madhava Ganitha Puraskar for the year 2020. The award, named after the famous Kerala Mathematician and Astronomer Sangamagrama Madhava of 14th century the founder of infinite series and modern infinitesimal analysis, is instituted by the Madhava Ganitha Kendra, Irinjalakuda (associated with CSU, New Delhi) for significant research contributions in Indian Mathematics/Kerala Mathematics and is declared annually on National Mathematics Day.
- National Merit Scholarship for Post Graduate Studies
- Dr S Parameswaran Endowment Award (1977), for securing University Rank in BSc Mathematics
- **Second Rank** for BSc Mathematics, 1977 Kerala University.

13. | Publications:

A) No. of Research Papers (in peer reviewed Journals) - 104

B) Books Authored, Journal & Proceedings (Edited)

- *Ganita Bharati*, Peer reviewed International Journal: Bulletin of the Indian Society for History of Mathematics, New Delhi (Asst. Editor: 2006 onwards)
- The Golasara Concept of Jya: A Study in Modern Perspectives, SSVV Series, 2004, ISBN:81-902243-6-0, A Research work based on the concept of Sine computations from the 15th century astronomical treatise Golasara (Quintessence of Spherics) by Nilakantha edited by KV Sarma, VVRI, Hoshiarpur, 1970

- Vatesvara's Interpolation Techniques in Modern Perspectives (for publication), A Research work based on various interpolation formulae and computations from the tenth-century astronomical treatise Vatesvara Siddhanta
- **History & Heritage of Mathematical Sciences** (Edited), Sukrtindra Oriental Research Institute, Kochi, 2009
- 'Pathfinder' Vol.1 (Mathematics Section), The Mathrubhumi Publication, Kozhikode, 1998
- 'Pathfinder' Vol.2 (Mathematics Section), The Mathrubhumi Publication, Kozhikode, 2002
- A series of weekly **study modules in Mathematics** through the Mathrubhumi weekly publication *Thozhil Vartha* (1996 2005) for the benefit of students aspiring to appear for Engineering Entrance Examinations to join IITs and other Professional Institutions.
- Proceedings of the International Conference on Mathematics Education and Mathematics in Engineering and Technology, ICMET'13 (Edited), ISBN:978-81-927250-7-9, Mohandas College of Engineering and Technology, Trivandrum, 2014
- Proceedings of the International Conference on Numerical Analysis, Computing & Applications in Science, Engineering and Technology, ICNumACA'18 (Edited), ISBN:978-93-85559-16-7, Mohandas College of Engineering and Technology, Trivandrum, 2019,
- Proceedings of the National Conference on Operations Research, Differential Equations,
 Numerical Analysis, Computing & Applications (Edited), Mohandas College of Engineering and Technology, Trivandrum, 2023
- Principal contributor to the research output in 3 acclaimed books authored by Prof Gheverghese George Joseph (University of Manchester, Mc Master University Canada; UK & National University, Singapore) namely:
- **A Passage to Infinity**, Sage Publications (2009);
- **Indian Mathematics**, World Scientific Publishing Europe Ltd, London (2016)
- **Kerala Mathematics**, BR Publishing Co., New Delhi, (2009)
- Authored an invited article (entitled 'Indian Mathematical Tradition with Special reference to Kerala: Methodology and Motivations') in the book Ancient Indian Leaps into Mathematics, Birkhauser- Springer, 2011
- Authored an invited article entitled 'Towards Broadening the Horizon of Ancient and Medieval Indian Mathematical Sciences', in the book: History of Mathematical Sciences II, Cambridge Scientific Publishers Ltd, 2012

14. Positions Held:

1) **Professor & Head of the Department of Mathematics, Science & Humanities**, Mohandas College of Engineering and Technology, Trivandrum (2012 July 4 onwards)

- 2) **Principal-in-Charge,** Mohandas College of Engineering and Technology, Trivandrum (16 May 2024 21 June 2024)
- 3) Head of the DST FIST sponsored Post Graduate & Research Department of Mathematics, Mar Ivanios College, Trivandrum (1 Feb. 2008 30 June. 2012)
- 4) **Senior Grade Lecturer, Selection Grade Lecturer, Reader, Associate Professor**, Department of Mathematics, Mar Ivanios College, Trivandrum (1983 2012)
- 5) **Junior Lecturer,** Department of Mathematics, **St** John's College, Anchal (1981 1983)
- 6) Chief Coordinator of the Centre for Mathematical Sciences South Campus (2008 2012), in Mar Ivanios Vidhya Nagar, Bethany Hills, Nalanchira, Trivandrum, a DST Sponsored Research Centre in Mathematics and Statistics with Main Campus at Pala affiliated to the Mahatma Gandhi University under the Directorship of Emeritus Professor Dr A.M Mathai, Mc Gill University, Canada.
- 7) **Head of the Department** for the First Year B.Tech Programme, Mohandas College of Engineering and Technology, Trivandrum (2012 July onwards)
- 8) Additional Chief Superintendent, MCET Exam Cell for Kerala University Examinations (2012 2024)
- 9) Additional Chief Superintendent, MCET Exam Cell for APJ Abdul Kalam Technological University Examinations (2016 2024)
- 10) Chief Coordinator, MCET Exam Cell for Series Examinations (2012 2024)
- 11) **Centre Superintendent** for offline **GATE** and **NTA NEET (UG) Examinations** in Mohandas College of Engineering and Technology, Trivandrum
- 12) **Centre Superintendent** for **Kerala Public Service Commission Examinations** in Mohandas College of Engineering and Technology, Trivandrum (2012 2021)
- 13) **Assistant Editor** of the International peer reviewed Journal *Ganita Bharati*, ISHM, New Delhi (from 2006 onwards)
- 14) Reviewer, 'Mathematical Reviews' of American Mathematical Society
- 15) Included in the Reviewer Data Base for the History of Science in South Asia, University of Alberta
- 16) **Referee** for various peer reviewed Mathematics Journals
- 17) **Executive Council Member** of the Society for History of Mathematics (India) from 2000
- 18) Editorial Board Member of the Bulletin of the Society for History of Mathematics (India) from 2002 onwards
- 19) Approved Research Guide in Mathematics, University of Kerala

- 20) Member/Convenor, Doctoral Committee in Mathematics, University of Kerala
- 21) **Member, Board of Adjudicators** for evaluation of PhD thesis and MPhil dissertations in various Universities
- 22) **Member, Post Graduate Board of Studies in Mathematics,** University of Kerala during the period 2001 2004
- 23) **Chairman,** Board of Examiners for Undergraduate and Postgraduate Examinations in the University of Kerala
- 24) Nominated by the University of Kerala to the Expert Committee for the Semesterisation of Under-Graduate Programmes in Colleges affiliated to the University.
- 25) **Subject Expert** for evaluation of Research Projects, Kerala State Council for Science, Technology and Environment
- 26) **Subject Expert,** Technical Paper Evaluation for Science Congress by Kerala State Council for Science Technology and Environment
- 27) **Chairman,** Technical Sessions (Mathematics & Statistics) at Kerala Science Congress organized by Kerala State Council for Science Technology and Environment
- 28) **Resource Person**, **Refresher Courses for University and College Teachers** under the auspices of UGC Academic Staff Colleges and various Universities in Kerala.
- 29) **Resource Person**, **Summer Institutes for High School Teachers** in Mathematics organized by the State Institute of Education, Govt. of Kerala (1982- 1989)
- 30) **Resource Person, Bhaskaracharya Symposiums** organized by **Trivandrum District Schools Mathematics Association** (2003 2005)
- 31) **Resource Person** for various events in several Schools such as Bhavans Vidya Mandir, Elamakkara, Christ Nagar International School, Trivandrum, Sabarigiri School, Punalur, Kendriya Vidyalaya, Pallipuram, Trivandrum, Kendriya Vidyalaya, Akkulam, Trivandrum, Raja Kesava Dasa NSS Higher Secondary School, Sasthamangalam, Arya Central School, Pattom, Trivandrum, etc.
- 32) **Subject Expert** (Mathematics) in various Interview Boards for selection of Mathematics Faculty in Schools and Colleges
- 33) **Subject Expert for annual evaluation of Mathematics Faculty** in the St Thomas Residential School (CICSE), St Thomas Central School (CBSE), and St Thomas Higher Secondary School (State), Trivandrum
- 34) Mathematics Subject Expert member in 'The Mathrubhumi' Panel of Experts for 'Popularising Science among Rural Students' (1996 2005)

- 35) Chapter Secretary (Trivandrum), Kerala Mathematical Association (2000-2010)
- 36) **Member of the Research Promotion Committee**, Mar Ivanios College, Trivandrum from 2002 to 2012
- 37) **Member of the College Council**, Mar Ivanios College, Trivandrum (2007 2012)
- 38) Member, Internal Quality Assurance Cell, Mar Ivanios College, Trivandrum
- 39) **Member, Mar Ivanios College NAAC Steering Committee** for the second re-accreditation of the institution (2011).
- 40) Member/Convenor, Library Committee, Mar Ivanios College, Trivandrum
- 41) **Convenor, College Level Monitoring Committee** for the Semester System Degree Programmes, Mar Ivanios College, Trivandrum (2010 2012)
- 42) **Member, Internal Quality Assurance Cell,** Mohandas College of Engineering & Technology, Trivandrum (2014 2024)
- 43) Member, College Council, Mohandas College of Engineering & Technology, Trivandrum
- 44) Member, Academic Council, Mohandas College of Engineering & Technology, Trivandrum
- 45) Member, Library Committee, Mohandas College of Engineering & Technology, Trivandrum
- 46) **Member, Anti-Ragging Committee,** Mohandas College of Engineering & Technology, Trivandrum

15. | Participation in Conferences/Seminars/Workshops

As an invited speaker participated and delivered technical talks in **50** National & **22** International Conferences/Seminars/Workshops. In particular, participated as an invited speaker and delivered talks at the following events:

• A week long International Workshop on Numerical Tables from 13 - 19 December 2010 jointly sponsored by Institut Mediterraneen de Recherches Advancees (IMeRA), Marseilles, France, and the French National Agency for Research ANR (Histoire des Tables Numériques headed by D. Tournes) hosted in Sciences Philosophy History Research Laboratories SPHERE, French National Centre for Scientific Research: Centre National de la Recherche Scientifique CNRS (under the French Ministry of Higher Education and Research, Paris VII University) organized by Professor Agathe Keller (Université Paris 7 – CNRS, SPHERE), Professor Clemency Montelle (University of Canterbury, New Zealand), Professor Kim Plofker (Union College, New York); and Dr. Christine Proust (Director for Research CNRS, SPHERE)

- Third International Conference on Mathematics Education at Zhejiang University of Science and Technology (ZUST), Hangzhou, China from 20 25 September 2014, organized by ZUST, Hangzhou; North West University of X'ian, National Science Foundation of China; Simon Fraser University, Canada; University of Paris, France; REHSEIS (SPHERE), France; and National Centre for Scientific Research (CNRS), France.
- International Workshop on medieval Kerala Mathematics (on both days, 15 16 December 2005) organized jointly by University of Exeter, UK and Kerala Council for Historical Research (KCHR) sponsored by the Arts and Humanities Research Board AHRB, UK in connection with the International Project coordinated by Dr George Gheverghese Joseph, University of Manchester, UK.
- International Conference on Mathematics in Ancient Times organized by Kerala School of Mathematics (KSOM) from 29 August to 1 September 2010 as a Satellite Conference of the 2010 International Congress of Mathematicians (ICM 2010)
- IAVM Knowledge Series 2022, Institute for Advancement of Vedic Mathematics, UK

Also delivered

- ➤ **Prof. T.A Sarasvati Amma Memorial Lecture**, St. Thomas College, Kozhenchery, 11 Aug. 2011.
- ➤ Prof. K.V Sarma Endowment Lecture, Queen Mary's College, Mylapore, Chennai, 23 Jan. 2015

Also chaired Technical Sessions in various National and International Conferences/Seminars

16. | Conferences Organized

 Organized 8 National Conferences, 3 International Conferences, and a number of State level, Regional level Seminars/Workshops/Lecture series for Faculty and Research Scholars, in various institutions such as: Mohandas College of Engineering and Technology, Anad, Trivandrum; Mar Ivanios College, Trivandrum; Centre for Mathematical Sciences (South Campus), Mar Ivanios Vidya Nagar, Trivandrum and Sukrtindra Oriental Research Institute, Thammanam, Cochin

The 3 International Conferences organized are:

Technology (ICMET'13) from 17 – 20 Dec. 2013, in the Department of Mathematics, Mohandas College of Engineering and Technology, Trivandrum; Co-Sponsored by the Kerala State Council for Science, Technology and Environment (KSCSTE), Indian Society for Technical Education (ISTE-MCET Chapter); and academically supported by the Indian Society of Industrial & Applied Mathematics (ISIAM), and the Kerala Mathematical Association (KMA)

- International Conference on Numerical Analysis, Computing and Applications in Science, Engineering and Technology (ICNumACA'18) from 17 20 December 2018, along with an Add-On Session on 14 January 2019, in the Department of Mathematics, Mohandas College of Engineering and Technology, Trivandrum; in-cooperation with the international Society for Industrial and Applied Mathematics (SIAM, USA); Co-Sponsored by the Kerala State Council for Science, Technology and Environment (KSCSTE), Council of Scientific and Industrial Research (CSIR HRDG), Indian Space Research Organisation (ISRO), Indian Society for Technical Education (ISTE-MCET Chapter); and academically supported by the Indian Mathematical Society (IMS), Indian Society of Industrial & Applied Mathematics (ISIAM), and the Kerala Mathematical Association (KMA)
- International Conference on History and Heritage of Mathematical Sciences (ICHHMS) from 19 22 December 2002 at the Sukrtindra Oriental Research Institute, Thammanam, Kochi; Co-Sponsored by the Council of Scientific and Industrial Research (CSIR), Indian National Science Academy (INSA); Indian Council for Historical Research (ICHR); Kerala Mathematical Association (KMA); and the Indian Society for History of Mathematics (ISHM)

17. | Summer Institutes/ Refresher Courses Attended

- Summer Institute in Statistics (Statistical Inference and Stochastic Processes) from 14 December 1981 to 7 January 1982, organized by the Department of Statistics, University of Kerala, sponsored by the University Grants Commission (UGC)
- Refresher Course in Mathematics for College Teachers from 3 March 24 March 1999 organized jointly by the Government of Kerala and the Department of Mathematics, University College, Trivandrum.
- Refresher Course in Mathematics for College Teachers from 1 March 22 March, 2000 organized jointly by the Government of Kerala and the Department of Mathematics, University College, Trivandrum

18. Membership in Academic/Subject Associations:

Life Member of

- Indian Mathematical Society (IMS)
- Indian Society for Technical Education (ISTE)
- Indian Society for History of Mathematics (ISHM)
- Association of Mathematics Teachers of India (AMTI)
- Indian Society of Industrial and Applied Mathematics (ISIAM)
- Kerala Mathematical Association (KMA)
- Kerala Statistical Association (KSA)
- Rajasthan Ganita Parishad (RGP)
- Bharat Ganitha Parishad (BGP)

19. | Some Significant Contributions as HoD

A) In Mar Ivanios College, Trivandrum

- Took the initiative and succeeded (with full support from the Principal Rev. Dr. Mathew Manakarakavil and Management) in raising the Post Graduate Department of Mathematics to the status of **Research Department** by establishing a **Research Centre in Mathematics affiliated to the Kerala University** in February 2009. The Research Centre was inaugurated on 21 February 2009 by the Former President of India, His Excellency Bharat Ratna Dr. A.P.J. Abdul Kalam
- Took the initiative and succeeded in getting the Department identified by the **DST Govt. of India** as '**DST-FIST Sponsored Department of Mathematics**'
- Took the initiative and succeeded in setting up a full-fledged **Departmental Computer Lab** with 30 computers using support schemes from DST-FIST and UGC
- As a member and convenor of the Library Committee, took the initiative and succeeded in renovating the Library and getting the **UGC-INFLIBNET** Scheme for the institution.
- Strengthened the Department with the support of Department Alumni by introducing Scholarship Schemes and Back to Campus motivation programmes by the Alumni.
- Introduced **Peer Teaching Learning System** in the department during free hours to improve the performance of academically weak students.
- Organized National and State level conferences / seminars / workshops/ lecture series for faculty, and Research Scholars with the support of various academic bodies, UGC, KSCSTE etc.
- Organized expert talks and lecture series in the Centre for Mathematical Sciences (South Campus)
 for Faculty and Research Scholars in Mathematics and Statistics in collaboration with the CMS
 Main Campus at Pala
- Organized several technical talks and interactive sessions by eminent Professors from reputed institutions in India, UK, Canada, Washington, Brussels etc. for motivating the undergraduate, postgraduate, and research students in Mathematics.

B) In Mohandas College of Engineering and Technology, Trivandrum

- As the Head of the Department for the First year B Tech Students, coordinating all their activities, taking individual care of the students, motivating them and enabling them to adapt themselves to fit into the new atmosphere of higher learning after leaving their School Campus.
- Organized various Conferences /seminars/ workshops including two International Conferences in 2013 and 2018 with active participation by a good number of eminent Professors and researchers from highly reputed institutions in India and abroad and a National Conference in 2023 with active participation by a number of eminent Professors and researchers from highly reputed institutions in India, Spain, and Cambridge.

- ➤ The 2013 international conference (ICMET'13), was inaugurated by Dr Andreas Philippou (Eminent Professor and Former Education Minister of Republic of Cyprus in Greece). There were 20 invited talks, 26 paper presentations and 156 delegates with 16 from abroad.
- ➤ During the 2013 Conference, one of the delegates from Ohio instituted an Endowment Scholarship for awarding to a girl student of B.Tech programme in Mohandas College of Engineering and Technology on merit cum means basis.
- ➤ The 2018 international conference (ICNumACA'18) was inaugurated by Dr. George Gheverghese Joseph, Emeritus Professor from the University of Manchester, UK. There were 25 invited talks, 22 paper presentations and 138 delegates with 14 from abroad.
- ➤ The 2018 International Conference succeeded in identifying and encouraging a very young brilliant student Ms. Mary Chriselda Oliver of the then first year degree program in Mathematics from the St Joseph's University, Bangalore to present a self-prepared paper on Markovian Property and its Application. This was highly appreciated by eminent Professors from Oxford, Spain, Chile, TIFR etc., and the student is currently pursuing doctoral studies in Applied Mathematics in the Cambridge University, UK.
- ➤ The 2023 national conference (CORDENumACA'23) was inaugurated by Dr Ciza Thomas, Vice Chancellor, APJ Abdul Kalam Technological University. There were 15 invited talks of which 2 are from Spain and Cambridge and contributory talks by 11 faculty and researchers with an overall participation of 100 delegates.
- Organized a **Seminar on Applied Mathematics in Engineering (SAME'12)** in association with the **Kerala Mathematical Association** from 29 30 Nov. 2012, as a part of the celebration of 125th birth anniversary of Srinivasa Ramanujan.
- Organized the Workshop on Applicable Mathematics in Science and Technology (WAMS) for the benefit of Faculty, Research Scholars and Students in association with the Kerala Mathematical Association (14 18 October 2014)
- In association with the Research Wing of MCET, a five day **Faculty Development Program** on **Research Methodology and Mathematical Approaches for Engineering Research** was organized from 3 -7 July 2017 for the benefit of Faculty and Research Scholars
- Organized Quiz Programs in Mathematics and Science and short Seminars on **Relevance of Mathematics in Engineering and Technology** for High School and Higher Secondary Students so as to motivate them and give them an insight into role of Mathematics in Professional Courses
- With more than four decades of expertise in handling Engineering Entrance Orientation Classes in Mathematics, organizing **Free KEAM Crash Orientation Programme** every year in MCET for higher secondary students aspiring to appear for KEAM.
- Conducted special diagnostic tests to identify academically weak students in mathematics and arranged Remedial Classes for them
- Organized Foundation Classes and Bridge Courses in Mathematics for First year students

20. Some Remarks by Internationally Renowned Professors

➤ Professor Dr. Agathe Keller (University of Paris, France)

"This is a certificate, to attest that Pr. Madhukar Mallayya has participated in the workshop 'History of Numerical Tables in India' from 13th to 17th December 2010 in Marseilles, France. He has given a three-hour talk on the 'Development of Trigonometric Tables in India' during the workshop. Its great scope, deep understanding and new outlook on different ways of making tables of sine difference, and of different interpolation techniques used was remarkable. We hope that it can be made into a research article published in a special issue devoted to the History of Numerical Tables in India coordinated by C. Montelle and myself (Agathe Keller), in an international peer reviewed journal."

Emeritus Professor Dr George Gheverghese Joseph (University of Manchester, UK)

"Dr Mallayya is a mathematician and a technical Sanskrit/Malayalam scholar of note who provided invaluable assistance to the AHRB project in the translation and interpretation of certain seminal texts of Kerala mathematics. More than that, he was a principal contributor to the research output contained in two books authored / edited by me, namely 'Kerala Mathematics: History and its Possible Transmission to Europe' (2009) and 'A Passage to Infinity: Medieval Indian Mathematics from Kerala and its Impact' (2009). Dr Mallayya and I are at present writing a book on Indian mathematics, which we hope to complete by the end of next year. Publishers both in India and abroad have expressed interest in this work. It is my considered opinion that as a result of Dr Mallayya's involvement in the AHRB project he has been able to hone in on his considerable skills as a historian of Indian mathematics and I have no doubt in rating him as one of the most promising scholars in this area."

> Professor Dr P Achuthan (IIT Madras, & Fellow of National Academy of Sciences)

"I have had the privilege of examining the PhD thesis of Sri Mallayya and also conducting the viva-voce examination. I found his research work quite interesting, informative and instructive, worthy of being pursued further on. Dr Mallayya has done extensive search in the relevant literature and extracted really valuable inferences which must be of great help for students / men of history of Mathematics. His excellent contributions should enrich our understanding of such rare aspects of scientific / mathematical culture of India and the World at large. I do believe that with the very good mastery over the field of his specialization acquired so far, Dr Mallayya can and will succeed further and I wish him all the best in his future endeavours."