

SUNETHRA WEERAKOON

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<http://learn.sjp.ac.lk/course/gce-al-combined-mathematics/>

1. EDUCATIONAL QUALIFICATIONS:

Institution	Period	Degree	Date
1.1 The Pennsylvania State University University Park, PA.16802, U.S.A.	1982 - 84	PhD (Mathematics)	December 1984
1.2 The Pennsylvania State University	1979 - 82	MA (Mathematics)	December 1982
1.3 University of Sri Lanka Peradeniya Campus	1972 - 76	BSc (Mathematics) (Honours)	April 1976

2. EMPLOYMENT RECORD (More than 40 Years of Continuous University Teaching)

Place of Work	Period	Position Held
2. 1 Department of Mathematics FAS & FGS University of Sri Jayewardenepura	May 2009 - Jan. 2017 2007 - 2011 May 2006-May 2009	Senior Professor Chairperson/ BSPS Coordinator/ MSc in IM
2.2 Department of Mathematics, Texas A & M Univ., College Station, TX	From August 2005 to May 2006	Visiting Professor
2.3 Department of Mathematics Cornell University, Ithaca, NY, USA	From August 2004 to May 2005	Visiting Professor
2.4 Faculty of Graduate Studies, SJP	Jan. 2002 - July 2004	Chairperson / BSPS
2.5 Department of Mathematics University of Sri Jayewardenepura	May 2001 Aug 2001 - Aug 2004	Professor Head of the Department

2.6 Faculty of Graduate Studies University of Sri Jayewardenepura	January 1996 to January 2002	Coordinator, Postgraduate Diploma/MSc in IM
2.7 Department of Mathematics University of Sri Jayewardenepura	April 1999 - May 2001 July 1993 - April 1999	Associate Professor Senior Lecturer (GI)
2.8 School of Mathematics & Statistics, Curtin University of Technology, Australia	July 1991 to July 1993	Visiting Teaching Fellow
2.9 Department of Mathematics University of Sri Jayewardenepura	Jan. 1991- July 1991 Jan. 1985 - Jan. 1991	Senior Lecturer (GI) Senior Lecturer (GII)
2.10 Department of Mathematics Pennsylvania State University University Park, PA, USA	August 1979 to December 1984	Teaching Assistant & Graduate Lecturer
2.11 Department of Mathematics Univ. of Sri Lanka, Vidyodaya Campus University of Sri Jayewardenepura	October 1976 to Jan. 1985	Probationary Assistant Lecturer
2.12 Department of Mathematics University of Sri Lanka, Peradeniya	April 1976 - Oct. 1976	Temporary Assistant Lecturer

3. ACADEMIC DISTINCTIONS, ACHIEVEMENTS & AWARDS:

- 3.1 Award for the Paper with highest number of citations in the University in the year 2018**
(SJP Research awards ceremony held in 2019)
- 3.2 Award for High No. of citations of the Faculty of Applied Science in 2016**
(SJP Research awards ceremony held in 2017)
- 3.3 Award for the Highest No. of citations of the Faculty of Applied Science in 2015**
(SJP Research awards ceremony held in 2016)
- 3.4 Award for the Highest No. of citations of the Faculty of Applied Science in 2014**
(SJP Research awards ceremony held in 2015)
- 3.5 Among top 20 SJP researchers receiving webometrics rankings in 2014**
- 3.6 Award for the Best research of the Faculty of Applied Science 2009)**
(Shared with Ms. Lakmali Salgado & Dr. T G I Fernando)
(SJP 50th anniversary academic sessions)

- 3.7 First person to earn the professorship in Mathematics by Merit in Sri Lanka. (2001)
- 3.8 First female to earn a professorship in Mathematics in Sri Lanka. (2001)
- 3.9 **Presidential Award** for Research for publishing in Mathematics in an indexed journal (2000)
- 3.10 Person with **highest number of citations in mathematics research in Sri Lanka** up –to-date.
- 3.11 First female to earn an associate professorship in Mathematics in Sri Lanka. (1999)
- 3.12 First person to write a university level mathematics book in Sinhalese. (1996)
- 3.13 First female Sri Lankan to earn a Ph. D. in Mathematics. (1984)
- 3.14 Award of **Curry Fellowship** on the Performance during the first year in Graduate Studies. (1980)
By the Department of Mathematics, The Pennsylvania State University in Honour of Professor Emeritus H B Curry,
- 3.15 Award of **Fulbright Hays Travel Grant**. (1979 -1984)
By the International Communication Agency and the Board of Foreign Scholarships of the US Foundation in Sri Lanka.
- 3.16 First female to be recruited to the academic staff of the Department of Mathematics, SJP. (1976)
- 3.17 Award of the **Pure Science Scholarship for opting to enter a Science faculty after qualifying to the Engineering faculty**. By the National Council for Higher Education in Sri Lanka. (1972 - 1976)

4. PUBLICATIONS AND PRESENTATIONS PUBLISHED IN ABSTRACT FORM:

- 4.1 Finite Difference Numerical Methods for Boundary Control Problems Governed by Hyperbolic Partial Differential Equations, (with G Chen, Q Zheng & M Coleman), Proceedings on the Workshop on Applications of Distributed Parameter System Theory to the Control of Large Space Structures - NASA Jet Propulsion Laboratory (1983), p447-495
- 4.2 An Initial Value Control Problem for the Burger's Equation, (with G Chen & H K Wang) Lecture Notes in Control and Information Sciences, (75) - Distributed Parameter Systems (1984), p52-76
Records 10 citations as of December 2019
- 4.3 An Initial Value Control Problem for the Burger's Equations, Ph.D. Thesis (1984)
Records 10 citations as of December 2019
- 4.4 A Study of Numerical Methods for Solving Initial Value Problems, (with L Menaka Lelwala) Annual Sessions of the Sri Lanka Association for the Advancement of Science - (December 1988)

4.5 Computer Education, Issues, Policy & Strategies - Proceedings of the UNESCO Workshop on The Use of Computers in the Teaching of Science and Mathematics in Asia and the Pacific, RMIT, Melbourne, Australia - (November 1989)

4.6 Numerical Solution of Nonlinear Algebraic Equations in the Absence of the Derivative, Proceedings of the Annual Conference of the Australian Mathematical Society held in the University of Western Australia, Perth, Australia - (July 1992)

4.7 Application of Sumudu Transform to Partial Differential Equations, **International Journal for Mathematical Education in Science and Technology** , Vol. 25, No. 2,(1994) 277-283

Records 111 citations as of December 2019

4.8 Newton's Root Finding Algorithm in the Absence of the Derivative, Proceedings of the Golden Jubilee Sessions of the Sri Lanka Association for the Advancement of Science, November 1994, E1-21, p 209

4.9 Numerical Solution of Non-linear Equations in the Absence of a Derivative,
Journal of the National Science Council of Sri Lanka –24(4) (1996) 309-318

Records 02 citations as of December 2019

4.10 Finite Difference Newton's Method for Functions of Two Variables, with Mr. H K G de Z Amarasekera, Proceedings of the Annual Sessions of the Sri Lanka Association for the Advancement of Science (November 1996), E1-02, p 158

4.11 Sumudu Transform and Laplace Transform: Reply, **International Journal for Mathematical Education in Science and Technology**, Vol. 28, (1997) 159-160

Records 11 citations as of December 2019

4.12 A Complex Inversion Formula for Sumudu Transform, **International Journal for Mathematical Education in Science and Technology**, VOL. 29. NO. 4(1998) 618-621

Records 64 citations as of December 2019

4.13 A Variance of Newton's Method with Accelerated Third Order Convergence (with Mr. T G I Fernando)
Applied Mathematics Letters 13(2000) 87-93

Records 865 citations as of December 2019

4.14 Finite Difference Newton's Method for Systems of Non-linear Equations, (with H K G de Z Amarasekera) **Mathematical Engineering in Industry**, (Vol.7, No.4 (1999) 433-440)

4.15 Improved Newton's Method for Finding Roots of a Non-linear Equations (with T G I Fernando) Proceedings of the First Annual Research Seccessions, USJ pp 225-235, (1998)

4.16 Approximating Roots of Unknown Functions (with H K G de Z Amerasekera) Proceedings of the First Annual Research Sessions, USJ, pp 236-246 (1998)

- 4.17 Estimating Parameters of a Mixture of Two Exponential Distributions (with S D L Geeganage & P Dias), Proceedings of the Research Sessions pp 247-263, USJ (1998)
- 4.18 Approximating Roots of Unknown Functions (with H K G de Z Amarasekera) Annual Sessions of the Sri Lanka Association for the Advancement of Science (December 1997), p 308 **(E1-21)**
- 4.19 Improved Newton Method for Finding Roots of Non-linear Equation (with T G I Fernando; Annual Sessions of the Sri Lanka Association for the Advancement of Science (December 1997), p 309 **(E1-22)**
- 4.20 Estimating Parameters of a Mixture of Two Exponential Distributions (with P Dias & S L D Geeganage), Annual Sessions of the S L Association for the Advancement of Sci. (December 1997), p 310 **(E1-23)**
- 4.21 Annual and Seasonal Trends in Rainfall in Sri Lanka (with A G C Seneviratne, W L Sumathipala & P Dias), Annual Sessions of the S L Association for the Advancement of Sci. (Dec. 1997), p 322 **(E1-35)**
- 4.22 Approximating Roots of Unknown Functions (with H K G de Z Amarasekera) Research Sessions of the Faculty of Graduate Studies, USJ, (March 1998), p 27
- 4.23 Improved Newton Method for Finding Roots of a Non-linear Equation (with T G I Fernando) Research Sessions 1998 of the Faculty of graduate Studies, USJ, (March 1998), p 22-26

Records 01 citations as of December 2019

- 4.24 Estimating Parameters of a Mixture of Two Exponential Distributions, (with P Dias & S L D Geeganage), Research Sessions 1998 of the Faculty of Graduate Studies, USJ (March 1998), p 30
- 4.25 Third Order Convergence of Improved Newton's Method for Roots of Non-linear Equations (with T G I Fernando), Annual Sessions of SLAAS (December 1998), p 252**(E1-31)**
- 4.26 Approximating Roots of Unknown Functions of Two variables (with H K G de Z Amarasekera. Annual Sessions of the S L Association for the Advancement of Sci, (December 1998), p253 **(E1-32)**
- 4.27 Study of Network Adaptive Routing for Circuit Switched Networks Using Computer Simulation (with M B Herath, J A K S Jayasinghe, E A T A Edirisooriya), Annual Sessions of the Sri Lanka Association for the Advancement of Science (December 1998), p 178**(C-54)**
- 4.28 Investigation of a Mortality Experience of a Sri Lankan Life Insurance Company, (with B M K N Dissanayake, P Dias & B M S G Banneheke), An. Sessions SLAAS (December 1998), p 352 **(F-25)**
- 4.29 Finite Difference Newton's method for functions of two variables, Ceylon Journal of Science, Physical Sciences, 5(1),85-95(1998), (with H K G de Z Amarasekera)

- 4.30 Software package consisting of Efficient techniques for Numerical Root Finding, Annual Research Sessions, Faculty of Graduate Studies, USJ (October 1999) Published in Abstract form (with H K G de Z Amarasekera & G K Watugala)
- 4.31 Second Order convergence of Finite Difference Newton's method for function of several variables, Annual Sessions of SLAAS, December 1999 pp (with H K G de Z Amarasekera & G K Watugala)
- 4.32 Computer based management system for Goods and Services tax administration in Sri Lanka, Annual Sessions of SLAAS, December 1999. (With R A S P Ranaweera et al)
- 4.33 A Finite Element Based Topographic Profile Modeling Technique for Propagation Path – Loss Calculation in VHF Electric Field Strength Prediction, Journal of IEEE (2002) (with P S Panawennege, G T F de Silva & W P A M Wijesinghe)
- 4.34 Third Order Convergent Gaussian Quadrature Newton's Method, SLAAS Annual Sessions 2002 (with G H J Lanel, G K Watugala & H K G de Z Amarasekara)
- 4.35 Degree Reduction of Bezier Curves, **Fiftieth anniversary academic sessions**, USJ; (2009) (with M D L Salgado, and T G I Fernando)
Adjudged the **Best research paper of the Applied Science Faculty.**
- 4.36 An optimal production process to maximize profit of a tea factory, Fiftieth anniversary academic sessions, USJ; (2009); (With M.B.Y. Perera & D.D. Ananda Gamini) (2009)
- 4.37 Review of the citations of the research paper: A variant of Newton's method with accelerated third- order convergence; Proceedings of the Sri Lanka Association for the Advancement of Science (2011) (with PCP Peiris and T G I Fernando)
- 4.38 Invertibility of Modified Buffon Transformation matrices; Proceedings of the Sri Lanka Association for the Advancement of Science (2011) (with C D B Hewa)
- 4.39 Traveling Tourist Problem for Selected Destinations in Sri Lanka; Sri Lanka Association for the Advancement of Sciences (2012) (with Seneviratna, DMKN, Lanel GHJ and Liyanage M)
- 4.40 Analysis of the University of Sri Jayewardenepura students' academic performance according to gender and the Z-score at the Advanced level, Sri Lanka Association for the Advancement of Sciences (2013) (with N Chathuranga Vidanage & B M S G Banneheka)
- 4.41 Improved Newton method to solve systems of nonlinear equations, Sri Lanka Association for the Advancement of Sciences (2014) (with H P S Nishani, T G I Fernando & L. Menaka Liyanage)
- 4.42 Finding Roots of a Nonlinear Equation Using Bat-Inspired Algorithm, Proceedings of the 70th Annual Sessions of the Sri Lanka Association for the Advancement of Science, 2014.

- 4.43 Finite Difference Weerakoon-Fernando Method to Solve Nonlinear Equations without using Derivatives, Sri Lanka Association for the Advancement of Science (2017)
(with Shadi Heenatigala & T G I Fernando) **Adjudged the best presentation**
- 4.44 A modified firefly algorithm to solve univariate nonlinear equations with complex roots.
Advances in ICT for Emerging Regions (ICTer), 2015 (with MKA Ariyaratne, TGI Fernando)
Records 04 citations as of December 2019
- 4.45 Preventive maintenance schedule for rubber tyred gantry cranes in ZPMC Lanka (Pvt) Ltd, Uni Alliance (2016) (with K.D.P.M Kariyawasam, R. Sanjeewa and M.T.S De Silva)
Adjudged the best presenter in the Physical Science Section.
- 4.46 A self-tuning Firefly algorithm to tune the parameters of Ant Colony System (ACSFA); arXiv preprint arXiv:1610.08222 (2016); (with MKA Ariyaratne & TGI Fernando)
Records 01 citations as of December 2019
- 4.47 A self-tuning modified firefly algorithm to solve univariate nonlinear equations with complex roots, Evolutionary Computation (CEC), 2016 IEEE Congress, 1477-1484 (with MKA Ariyaratne & TGI Fernand) **Records 07 citations as of December 2019**
<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7743964&isnumber=7743769>
- 4.48 A Modified Firefly Algorithm to Solve Systems of Nonlinear Equations, Proceedings of the 73rd Annual Sessions of the Sri Lanka Association for the Advancement of Science, 2017.
(with M K A Ariyaratne and T G I Fernando) **Records 02 citations as of December 2019**
- 4.49 A self-tuning firefly algorithm to tune the parameters of ant colony system. International Journal of Swarm Intelligence, 3(4):309331, 2018. doi: 10.1504/ijsi.2018.091415.
(with M.K.A. Ariyaratne and T.G.I. Fernando)
<http://www.inderscience.com/info/inarticle.php?artid=91415>
- 4.50 An Archived firefly Algorithm; A mathematical software to solve univariate nonlinear equations, The International Journal on Advances in ICT for Emerging Regions (ICTer), Vol 9, No 1, 2016 Special Issue. [Impact Factor: 0.7], [H Index = 8] (with M.K.A. Ariyaratne and T.G.I. Fernando)
<http://journal.icter.org/index.php/ICTer/article/view/213/55>.
- 4.51 Weerakoon-Fernando Method with accelerated third order convergence for systems of Nonlinear equations, International Journal of Mathematical Modelling and Numerical Optimisation ; Volume 8, Issue 3, pages 287-304; Inderscience Publishers (IE)
(with H P S Nishani, T G I Fernando & L Menaka Liyanage)
Records 02 citations as of December 2019

4.52 Solving systems of nonlinear equations using a modified firefly algorithm (MODFA), Swarm and Evolutionary Computation, Volume 48, 2019, Pages 72-92, (with M.K.A. Ariyaratne & T.G.I. Fernando) <https://doi.org/10.1016/j.swevo.2019.03.010>.

Online publication date: 29 March 2019. 2019 Elsevier (ISSN: 2210-6502) [Source Normalized Impact per Paper (SNIP): 2.841] [SCImago Journal Rank (SJR): 1.278] with M.K.A. Ariyaratne & T.G.I. Fernando) **Records 02 citations as of December 2019**

4.53 Finite Difference Weerakoon-Fernando Method to solve nonlinear equations without using Derivatives had been accepted for inclusion in the Future of Information and communications. Conference (FICC) 2019 which was held from 14-15 March 2019 in San Francisco. It was technically sponsored by IEEE. (with Shadi Heenatigala & TGI Fernando)

4.54 A Self-Tuning Algorithm to Approximate Roots of Systems of Nonlinear Equations Based on The Firefly Algorithm. International Journal of Swarm Intelligence, Inderscience Publishers (with M. K. A. Ariyaratne & T.G.I. Fernando) Accepted and in Production. Date of acceptance: 05th May 2019.

5. BOOKS & CHAPTERS OF BOOKS AUTHORED / EDITED

5.1 මූලික සංඛ්‍යාත්මක ක්‍රම, (Elementary Numerical Methods) - 217 page book in Sinhala. (January 1997)

First Mathematics book at the university level published in Sinhala

5.2 Numerical Solution of Ordinary Differential Equations, 164-page book written in English. (1999)

5.3 Partial Differential Equations, 147-page book written in English (2000)

Reference **Standard**, Chapter Published in Sinhala Encyclopaedia - (1994)

5.4 Measurements, Chapter Published in Sinhala Encyclopaedia (1994)

5.5 Accuracy & Accuracy Test, Chapter Published in Sinhala Encyclopaedia - (1994)

5.6 මූලික සංඛ්‍යාත්මක ක්‍රම, (Elementary Numerical Methods), Revised Second edition, (2007)

(Godage Publishers).

5.7 Public Universities - Present Status and the Way Forward, Proceedings of the Seminar held on the 4th of June 2016 at the Fingara Town & Country Club. Joint Editor with Dr. Shirani Perera.

5.8 උසස් පෙළ වසර 12 ව්‍යවහාරික ගණිතය (Vidya Publishers)

Joint Editor with GJK Silva - Author: Chalani Ehani Pathirana.(2017)

5.9 උසස් පෙළ වසර 13 ශුද්ධ ගණිතය (Vidya Publishers)

Joint editor with GJK Silva - Author: Chathurika Srimali Abeykoon (2017)

5.10 උසස් පෙළ වසර 12 ශුද්ධ ගණිතය, (Vidya Publishers & Samudra Publishers)

Joint editor with Menaka Liyanage & GJK Silva

Authors: Chathurika Srimali Abeykoon & Hiruni Kamali Pallage.(2018)

5.11 උසස් පෙළ වසර 13 ශුද්ධ ගණිතය, Revised second edition (Vidya Publishers & Samudra Publishers)

Joint editor with GJK Silva ; Author: Chathurika Srimali Abeykoon (2018)

5.12 උසස් පෙළ වසර 12 ශුද්ධ ගණිතය, Revised Second Edition (Sarasavi Publishers)

Joint editor with Menaka Liyanage & GJK Silva

Authors: Chathurika Srimali Abeykoon & Hiruni Kamali Pallage.(2019)

5.13 උසස් පෙළ වසර 12 ව්‍යවහාරික ගණිතය, Revised Second Edition (Sarasavi Publishers)

Joint Editor with GJK Silva - Author: Chalani Ehani Pathirana.(2019)

5.14 උසස් පෙළ වසර 13 ශුද්ධ ගණිතය, Revised Third Edition (Sarasavi Publishers)

Joint editor with GJK Silva ; Author: Chathurika Srimali Abeykoon (In Print)

6. SUPERVISION OF POSTGRADUATE WORK:

6.1 Ph. D. Ms. M. K. Anuradha Ariyaratne (Joint Supervisor with Dr. T. G. I Fernando),

Firefly Algorithm based self-tuning algorithm to solve systems of nonlinear equations,

November 2018

6.2 M.Phil. Ms Sagari Deepa Lanka Geeganage (Joint Supervisor with Mr P Dias), Estimating the

Mixing Proportions and Parameters of a Mixture of Exponential Models, **Dec. 1997**

6.3 M.Phil. Mr. H K G de Z Amarasekera (Joint Supervisor with Dr G K Watugala),

Determination of Zeros using Finite difference Newton's method in the absence of the closed form of the function, **July 1999**

6.4 M.Sc. Mr T G I Fernando (Joint Supervisor with Dr G K Watugala & Ms G S Makalanda), Improved

Newton's Method for Solving Non-linear Equations, **May 1998**

6.5 M.Sc. Mr Pasdunkorale Arachchige Jayantha (Joint Supervisor with Dr G K Watugala & Prof. D

A Tantrigoda), Direct Resistance Heating of a Circular Sheet Metal, **May 1998**

6.6 M.Sc. Mr Mahinda B. Herath (Jointly with Dr. J.A.K.S. Jayasinghe & Mr. E A T Edirisooriya),

Study of Network Adaptive Routing for Circuit Switched Networks, **May 1998**

6.7 M.Sc. Mr. U Angamma (Joint Supervisor with Dr W C W Perera & Dr B M S G Banneheka)

Population Growth, Birth & Death Rates in Sri Lanka, **April 2000**

6.8 M.Sc. Mr. P .P. J. Fernando (Joint Supervisor with Dr G K Watugala & Dr. Nalin Ranasighe)

Recognition of Sinhala Speech by a Signal Processing Approach via Wavelets as an alternative to Statistical Method using Phonemes. **April 2000**

6.9 M.Sc. P. S. Panawennege (Joint Supervisor with Prof. G. T. F. de Silva & Mr. Wijesinghe)

Improving Currently Used Techniques for the Prediction of Electric Field Strength in Coverage Area of a VHF Broadcast Transmission, **April 2000**

- 6.10 **M.Sc.** Mr. G H J Lanel, Gaussian Quadrature Newton's method for finding roots of nonlinear equations. **November 2002**
- 6.11 **M.Sc.** Ms. A. Tennkoon (Jointly with S Basnayaka & M K N Siriwardene) Storm Surge Forecasting. **December 2003**
- 6.12 **M. Sc.** Ms. M. B. Y. Perera, (Jointly with D A Gamini) An optimal production process to maximize profit based on data from a factory producing orthodox tea. **October 2008**
- 6.13 **M. Sc.** Ms. DMKN Seneviratna, (Jointly with, Lanel GHJ and MenakaLiyanage) Traveling Tourist Problem for Selected Destinations in Sri Lanka; **(2012)**
- 6.14 **M. Sc.** Ms. H P S Nishani, (Jointly with TGI Fernando & L M Liyanage) Improved Newton's method for systems of nonlinear equations **(April 2015)**
- 6.15 **M. Sc.** Mr. Uhanovitage Nilantha Indrajith Priyadarshana, Easy and effective rescheduling of train timetable for Sri Lanka Railways (2015) (with R Sanjewa) **(April 2015)**
- 6.16 **M. Sc.** Ms. Ganesha Kalyani Thondilege (2015), Investigation of the possibilities of multispecies sharing the same cage at the national zoological gardens. (with G H J Lanel) **(April 2015)**
- 6.17 **PG.Dip.** Mr. Balamurari, (Joint Supervisor with Prof. H G Nandadasa & Mr. P. Dias) Probabilistic Study of Population Genetics using Hardy - Weinberg Law, **April 2000**
- 6.18 **PG.Dip.** D. A. Rohana (Joint Supervisor with Dr. Amal Kumarage & Mr. P. Dias; A Mathematical Model Based on Road Accidents in Sri Lanka, **April 2000**
- 6.19 **PG.Dip.** Mr Sabapathy Krishnakumar (Jointly with Dr G K Watugala & Dr M L Liyanage), Adaptive StepSize Control in Numerical Analysis in Solving Initial Value Problems, **May 1998**
- 6.20 **PG.Dip.** Mr. B. W. K. N. Dissanayake (Jointly with Mr P Dias and Dr B M S G Banneheka, Study of the Mortality Experience in Sri Lankan Insurance Companies, **May 1998)**
- 6.21 **PG.Dip.** Ms. Y K Amarasena (Joint Supervisor with Mr. H L Premaratna & Mr P Dias), Performance of Database Access **(August 1997)**
- 6.22 **PG.Dip.** Ms. P R R D Peramuna (Joint Supervisor with Mr. H L Premaratna & Mr E A T A. Edirisooriya) Inventory Control System for Atlas Plastics (Pvt.) Ltd. **(August 1997)**
- 6.23 **PG.Dip.** Ms A G C Seneviratne (Jointly with Dr. W L Sumathipala & Mr P Dias) Annual and Seasonal Trends Rainfall in Sri Lanka (August 1997)
- 6.24 **PG.Dip.** R A S P Ranaweera Computer based management system for Goods and Services tax administration in Sri Lanka (June 1999).

- 6.25 **PG.Dip.** A A. P. Liyanage (Joint Supervisor with C J Rajapaksha & P. Dias) A Partial Solution to ease up traffic congestion in Nugegoda metropolitan Area, **July 2002**
- 6.26 **PG.Dip.** Ms. V. Abeygunawardene – Influence of Repair & Maintenance procedure on the efficiency & productivity of the University and suggestions for improvement.

7 SPECIAL DEGREE IN MATHEMATICS) FINAL YEAR PROJECTS SUPERVISION

- 7.1 Mr B M S G Banneheka, Study of Numerical Methods for Non-linear Equations (1985/86)
- 7.2 Ms K C N Shanthidevi, Survey of Numerical Methods in Solving Systems of Linear Equations (1985/86)
- 7.3 Ms L M Leiwela, A survey of Numerical Schemes for Solving Ordinary Differential Equations, (1986/87)
- 7.4 Mr R K Nihal, A Survey of Polynomial Interpolation Methods (1986/87)
- 7.5 Mr E A T A Edirisooriya, A Survey of Numerical Methods in Solving Partial Differential Equations (1989/90)
- 7.6 Mr Kapila Alwis, Optimal Step size Control for Numerical Algorithms (89/90)
- 7.7 Mr Marcus Brinsden - **Curtin Univ.**, Perth, Australia, A Survey of Transform Methods in Solving Partial Differential Equations (92/93)
- 7.8 Mr M K Chinthaka Gunadasa, Finite Difference Techniques for Partial Differential Equations (Dec1994)
- 7.9 Mr H K G de Z Amarasekera, Testing Finite Difference Newton's Method in Two Dimensions 1995/96)
- 7.10 Ms K A D T Kulawansa, Numerical Integration Methods (1998)86.11. Ms. H. V. Vidanagamage, Numerical Methods to Find Eigenvalues of a Matrix (2000)
- 7.11 Mr. Abeysinghe , Difference Methods in Numerical Analysis
- 7.12 Ms. P A N D Perera, Function Approximation Methods (2002)
- 7.13 Ms. H I B Soysa, A study of Fenchel conjugate of convex functions (2002)
- 7.14 Ms. R A S S Ranasighe, Analysis of Income and Expenditure of fee-paid Postgraduate programs conducted at the University of Sri Jayewardenepura (2007)
- 7.15 Ms. Imanthika Ranaweera, Infinite Products (with Mr. G J K Silva) (2007)
- 7.16 Mr. Dilum de Silva, Music & Mathematics (with Dr. L M L Liyanage) (2008)
- 7.17 Ms. Dayani Perera, Understanding the framework of Mathematical modelling, (with N C Ganegoda) (2009)

- 7.18 Ms. Lakmali Salgado, Degree reduction in Bezier curves (2009) (with T G I Fernando)
- 7.19 Mr. C P Chandima Peiris, Review of the citations of the research paper: A variant of Newton's method with accelerated third-order convergence. (2011)
- 7.20 Mr. C. B. D. Hewa, Invertibility of the Modified Buffon Transformation Matrix (2011)
- 7.21 Mr. N. Chathuranga Vidanage, Analysis of the University of Sri Jayewardenepura students' academic performance according to gender and the Z-score at the Advanced level (with B M S G Banneheka) (2012)
- 7.22 Ms. Piyumi Madhubhashini Welitharage, Teaching Calculus in Sinhala using Audio visual techniques. (with Gayan Jayasinghe) (2013)
- 7.23 Ms. Chalani Eshani, Using Audio Visual Technology in Learning A/L Mathematics in Sinhala (Yr 12 AM), (with G J K Silva) (2014)
- 7.24 Ms. Hiruni Pallage Using Audio Visual Technology in Learning A/L Mathematics in Sinhala (Yr 12 PM) (with L Menaka Liyanage) (2014)
- 7.25 Mr. Pahan Kariyawasam, Preventive maintenance schedule for Rubber Tyred Gantry Cranes In ZPMC LANKA (PVT) Ltd., (with R Sanjeewa) (2014)
- 7.26 Ms. Chathurika S Abeykoon; Using Audio Visual Technology in Learning A/L Mathematics in Sinhala (Yr 13 PM) (with G J K Silva) (2015)
- 7.27 Mr. Madhusa Lakshan; Using Audio Visual Technology in Learning A/L Mathematics in Sinhala (Yr 13 AM) (with G J K Silva) (2015)
- 7.28 Ms. L M Asha Madhuwanthi, A Study of students' performance at Engineering and Physical Science undergraduate degree programs (with Chitraka Wickramarachchi) (2016)
- 7.29 Shadi Heenatigala, Search for an Efficient Algorithm without the derivatives to numerically solve nonlinear equations (with T G I Fernando) (2016)

8 CONTRIBUTIONS TO CURRICULUM AND INSTITUTIONAL DEVELOPMENT

- 8.1 Initiated, prepared the proposal, laid all necessary ground work and started the pioneering Master's Degree Program in Industrial Mathematics in Sri Lanka.
- 8.2 Prepared the proposal (100+ page) to receive the **Science and Technology personnel development Grant** from the Asian Development Bank. Department was given a grant to purchase hardware and software for undergraduate and postgraduate programs.
- 8.3 Proposal to select the undergraduates to follow the Special Degree in Mathematics at the end of their second year changing the practice of selecting them at the end of their first year

considering **the high failure rate prevalent at the time**. Implemented in Mathematics and subsequently all other departments in the faculty of Applied Science.

- 8.4 Proposed to introduce the subsidiary subject requirement for the Mathematics Special candidates to encourage students to choose the Mathematics Special program, increasing the student number. Donated **100,000.00 LKR** to establish a fund to award a **Gold Medal** for the best performer from the graduating Mathematics Honors batch.
- 8.5 Laid groundwork and prepared the first Institutional Report of SJP in 2009/10 as the Secretary of the Quality assurance shell with the help of all Deans and the HoDs of the University until voluntarily suggesting and handing over the responsibility to Prof. Samanthi, the present Director.

9 MEMBERSHIPS & POSITIONS HELD IN ACADEMIC SOCIETIES

- 9.1 Member - Mathematical Association of America (1979 - 1984)
- 9.2 Member - American Mathematical Society (1979 - 1984)
- 9.3 Member, Society for Industrial and Applied Mathematics (SIAM) 1991-1993
- 9.4 Life Member - Sri Lanka Association for the Advancement of Science
- 9.5 Council Member - Computer and Information Technology Council of Sri Lanka (**CINTEC**) (June 1989 - June 1991)
- 9.6 Member - Examination Council for National Examination in Computer Studies; (**NECS**) (1990/1991)
- 9.7 Member Syllabus Committee for National Examination in Computer Studies
- 9.8 Chairperson - **First Research Committee of the Faculty of Applied Science**, SJP (March 1990 July 1991) with members: Prof. P C B Fernando, Prof. Ajit Abeysekera and Prof. Manel Attigalle
- 9.9 Member - Australian Mathematical Society (1991 -1993)
- 9.10 Member - Australian Applied Mathematics society (1991 -1993)
- 9.11 Chairperson - Faculty Sub Committee to Consider Introducing Forestry & Environmental Studies as a Subject at the Undergraduate Level by establishing a separate department.
- 9.12 Coordinator - Master's Degree program in Industrial Mathematics (January 1996 to January 2002)
- 9.13 Secretary - Physical Sciences Section of Sri Lanka Association for the Advancement of Science (**SLAAS**)(1999)
- 9.14 President - Physical Sciences Section of SLAAS (2000)
- 9.15 Vice President – General Research Committee of SLAAS (2001)

- 9.16 Chairperson – General Research Committee of SLAAS (2002)
- 9.17 Chairperson – Board of Study in Physical Sciences, Faculty of Graduate Studies, USJ (2002 – 2004)
- 9.18 Council member (Elected) - Sri Lanka Association for the Advancement of Science (2003)
- 9.19 Evaluator – Mathematical Olympiad team, Cornell University
- 9.20 Faculty Fellow –Holland International Living Center, Cornell University
- 9.21 Evaluator – Integral Bee Competition, Texas A & M University
- 9.22 Coordinator – PG Diploma/Master’s program in Industrial Mathematics (2006 -2010)
- 9.23 Chairperson - Board of Study in Physical Sciences 2008 -2010
- 9.24 Chairperson – Faculty sub-committee to resolve issues of the English language learning.

10 REVIEWING PAPERS

The following are some of the journals that requested my services as a referee in recent years. Please note that I refrain from giving the titles of the articles to preserve the confidentiality.

- 10.1 Journal of Computational and Applied Mathematics. (December 2019)
- 10.2 IEEE Access. (October 2019)
- 10.3 Journal of Cogent Business & Management. (September 2019)
- 10.4 International Journal of Finance and Economics. (August 2018)
- 10.5 Asian-European Journal of Mathematics (AEJM). (July 2018)
- 10.6 Journal: of Mathematical Communications. (September 2017)
- 10.7 Journal of Mathematical Analysis.

11 SEMINARS & WORKSHOPS ORGANISED / ACTED AS RESOURCE PERSON / PARTICIPATED

- 11.1 Seminar on Control Theory, Centre de Recherché de Mathematics, University of Montreal, Canada. (July,1983)
- 11.2 International Colloquium on Number Theory to Commemorate Ramanujan’s Birth Centenary, Institute of Fundamental Studies, Hantana, Kandy, Sri Lanka. (December, 1987)
- 11.3 UNESCO Workshop on Teaching Mathematics and Science Using Computers, Royal Melbourne Institute of Technology, Melbourne, Australia. (November 15- 24, 1989)
- 11.4 Workshop to formulate the Syllabus for the National Examination in Computer Studies, BMICH, Sri Lanka. (May 1990)

- 11.5 Seminar on Information Technology - The Need for Law Reforms, BMICH, Sri Lanka. (Sept., 1990)
- 11.6 Annual Sessions of the Australian Mathematical Society, Perth, Australia (July 6 - 10, 1992)
- 11.7 Numerical Solution of Nonlinear Algebraic Equations in the Absence of Derivative, School of Math & Statistics, Curtin University of Technology, Australia, September 1992.
- 11.8 Organized seminars on their postgraduate research when Mr. P Dias, Dr. Prasansa Kalukottege, Dr. Menaka Liyanage, Dr. B M S G Banneheka and Mr. E A T A Edirisuriya returned to the country after finishing their doctoral and Master's degrees in Australia, Japan, Canada, Canada and China respectively.
- 11.9 Attended Weekly Educational Mathematics seminar/ Dept. of Mathematics, Cornell University, USA (2004/05).
- 11.10 International Industrial Mathematics Conference – I, Fingara Town & Country Club and The University of Sri Jayewardenepura, (June 3rd -5th 2016)
- 11.11 Participated In numerous Mathematics and related talks, seminars and Colloquia held in USA as a doctoral student for 5 years & as a visiting professor for 2 years & in Australia as a visiting Scholar and in Sri Lanka.

12 REPORTS & DOCUMENTED ORATIONS

- 12.1 How my Teaching evolved over the years - Educational Mathematics Seminar, Cornell University, USA - April 2005
- 12.2 **Whither Research; Applied or Pure?** (December 2001), **Theme Seminar**, Research Sessions, USJ
- 12.3 **Mathematics & Industry – Bridging the Gap** (2000), Presidential Address of the Physical Sciences Section of SLAAS
- 12.4 Proposal to start a Master's Degree in Industrial Mathematics submitted to the Council of USJ through Faculty Board of Applied Science and the Senate, USJ (July 1995)
- 12.5 Documented Oration delivered at the inauguration ceremony of the Masters Programme in Industrial Mathematics (March 1996); Appeared in the centre page of the Daily News on the 24th of April 1996.
- 12.6 Computer Education, Issues, Policy & Strategies - Country paper presented at the UNESCO Workshop on The Use of Computers in the Teaching of Science and Mathematics in Asia and the Pacific, RMIT, Melbourne, Australia - (November 13-29, 1989)

- 12.7 Over 100-page proposal to ADB to earn a grant to purchase computers and train man power to the Department of Mathematics, USJ (1997)

13 CONTRIBUTION TO TEACHING & ACADEMIC DEVELOPMENT

- 13.1 Introduced **teacher evaluation forms** to postgraduate level teaching as far back as 1996 and subsequently to undergraduate teaching as well to get a feedback from students.
- 13.2 Encouraged a **“chit” system** to break the ice between the lecturer and the students to counter student reluctance to communicate during lecture.
- 13.3 Used **power point slides** in addition to the black/white board in teaching in all large lectures as far back as early 90's to improve visibility for students. Used to give both **Sinhala notes and the English translation simultaneously in the slides** when teaching the **first year students** so that they could learn English along with Mathematics. Distributed periodically updated prepared notes to the students.
- 13.4 Used continuous assessments, pop-up quizzes and mid-semester examinations in addition to the final examination to evaluate students, forcing them to attend lectures and to be up-to-date without neglecting academic work during the semester. Implemented before the Quality Assurance Council imposing these requirements.
- 13.5 Introduced several new courses during my academic career. Given below are some of the most significant contributions:
- 13.5.1 Formulated a syllabus for Numerical Methods for the first time as a probationary assistant lecturer. Introduced several Numerical Analysis courses at undergraduate and postgraduate levels.
 - 13.5.2 Knowing the new trends, introduced a new Finance course “Mathematical Exposition” as soon as I returned after sabbatical leave.
 - 13.5.3 Introduced the course “History of Mathematics” to our Mathematics undergraduate curriculum - first such in Sri Lanka. Designed course to improve students' enthusiasm in Mathematics, peer evaluating skills, writing and presentation skills in addition to learning the History of Mathematics.
 - 13.5.4 Revived the “seminars” course for Industrial Mathematics Master's program with several new features such as Automathography, term papers, internet and library assignments and peer evaluations in addition to presentations.

13.5.5 Introduced features such as the requirement to submit **Term Papers** and **Student Presentations** to enhance student oral and writing skills, added an extra working load to my heavy schedule. Guided and evaluated nearly 100 Term Papers and nearly 200 presentations by fourth year Mathematics special students and Master's degree Industrial Mathematics students during last 10 years of my career.

14 INITIATIVES

14.1 Striving to eradicate ragging

- 14.1.1 Published the article entitled “නවක වදය පිටුදකිමු” to the national newspapers. Quoted by Minister of higher education Mr. Richard Pathirana in the parliament to garner support of members to pass the legislature imposing stringent conditions and severe punishments to ragging offenders.
- 14.1.2 Initiated formation of anti-ragging Orientation Committee including 16 more academics in the Faculty of Applied Science (including Dr Prasansa Kalukottege) during tenure of the dean Prof W. S. Fernando. Achieved progress with collaboration of senior students who graduated in 2004.
- 14.1.3 Organised seminar on **prevention of ragging** as the President of the Science Teachers Association in 1996, with support from Prof. Nandasena Rathnapala and senior lecturer Bharatha Dodankotuwa.

14.2 Nurturing a research culture in Mathematics

- 14.2.1 Pioneered the **field of Industrial Mathematics** in Sri Lanka with the intention of producing employable graduates. Put forward the proposal, laid down all necessary groundwork and was the founding coordinator of the Postgraduate Diploma/MSc program in Industrial Mathematics, instituted in 1996. Instrumental in establishing collaborative Mathematics research.
- 14.2.2 Inculcated previously non-existent Mathematics research culture. First academic from the Department of Mathematics, USJ to return after probationary study leave for Ph. D. degree.

14.3 Coordinator/PG Diploma/MSc in Industrial Mathematics (1996-2002 & 2006- 2010)

Donated the 100,000.00 LKR received from the **Presidential Research Award to the University (2001)** as necessary resources to establish scholarship fund for Industrial Mathematics

Completed three high-achieving Masters batches within 6 years as the coordinator till February 2002.

Alumni (more than 7) have finished PhDs or are currently engaged in PhD research. Dean/Science, Ruhuna University, Coordinator/MSc in Comp Sc/USJ, CEO/Skyline Network, Director & CEO/Arthur Clerk Centre, former, HoD, Dept. of Math philosophy/OUSL, Highest qualified Actuary in SL with a PhD and FAS, Former Director/Research/NARA and a few other academics among alumni.

14.4 Introduction of the Industrial Internship Program:

Introduced the Industrial Internship Program as the Head of the Department of Mathematics, allowing Mathematics Honors students to spend a fixed duration before the start of their fourth year in an industrial setting (2003).

14.5 Starting the Mathematics Library

Established Mathematics library using personal books (such as Stewart, Burden & Frairies, Thomas and Finney) brought after sabbatical leave in June 2005

Donated 50 valuable books to commemorate the 50th year of the University in the hope of launching a book drive for the Golden Jubilee.

Donated the monthly coordinator's fee to buy books to the mathematics library for about a year.

Donated most personal Mathematics books after retirement.

Donated over 100 books and 70 booklets along with 10 copies of the Elementary Numerical Methods (මූලික සංඛ්‍යාත්මක ක්‍රම) book I authored to the general library in May & July of 2019 to mark 60th anniversary of University.