

**International Conference on
Mathematics and Mathematics Education
ICMME 2023
14th and 15th July 2023**

Technical Sessions Information

Zoom meeting for each session can be accessed via the following links.

The detailed programme can be accessed at <http://www.pgis.pdn.ac.lk/icmme2023/event.html>

9.00am – 9.30am Plenary Talk by Prof. Berinder Jeet Kaur

[Click here to Join](#)

11.00am – 11.30am Plenary Talk by Prof. Dinesh Ekanayake

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Technical Sessions A1, A2, A3

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Technical Sessions B1, B2

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Technical Sessions C1, C2, C3

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Technical Sessions D1, D2, D3

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ICMME 2023 | Saturday, 15th July 2023

Technical Sessions Summary | Abstract IDs

9.00AM – 9.30AM		Plenary Talk by Prof. Berinder Jeet Kaur			
Time	Session A1	Session B1	Session C1	Session D1 (Math Ed)	
9.45AM - 10.00AM	6	3	35	41	
10.00AM - 10.15AM	16	21	45	10	
10.15AM - 10.30AM	31	23	59	26	
10.30AM - 10.45AM	34	29	64	58	
Break (10.45 A M - 11.00 A M)					
11.00AM - 11.30AM		Plenary Talk by Prof. Dinesh Ekanayake			
Time	Session A2	Session B2	Session C2	Session D2 (Math Ed)	
11.45AM - 12.00PM	2	20	9	42	
12.00PM - 12.15PM	18	27	24	38	
12.15PM - 12.30PM	25	36	32	46	
12.30AM - 12.45PM	33	39	49	55	
12.45PM - 1.00PM	37	53	51	40	
1.00PM - 1.15PM	44	47		57	
1.15PM - 1.30PM		7			
Break (1.30P M - 2.00 P M)					
Time	Session A3		Session C3	Session D3 (Math Ed)	
2.00PM - 2.15PM	4		1	48	
2.15PM - 2.30PM	5		12	50	
2.30PM - 2.45PM	11		13	54	
2.45PM - 3.00PM	28		15	60	
3.00PM - 3.15PM	19		17	61	
3.15PM - 3.30PM	30		22	62	
3.30PM - 3.45PM	52			66	

NOTE: Abstract Titles and the authors are given in the following pages

ICMME 2023 | Technical Sessions | Saturday, 15th July 2023 | 9.45am-10.45am

	Session A1	Session B1	Session C1	Session D1
<i>Time\</i> Session Chairs	<i>Prof. WB Daundasekara Dr. R Sanjeewa</i>	<i>Dr. UGIGK Udagedara Dr. SA Amila Nishantha</i>	<i>Dr. KMNM Chathuranga Dr. Kapila Kottegoda</i>	<i>Prof. HMSP Madawala Mr. AMRS Bandara</i>
9.45AM - 10.00AM	A MATHEMATICAL APPROACH TO FIND THE OPTIMAL WORKING ROLE ALLOCATION WHICH MINIMIZE THE TOTAL WORKING TIME <i>P.L.M.W.T.P. Jayasinghe; M.S. Wickramarachchi*</i>	STUDY OF NITROGEN DIOXIDE ANNUAL AVERAGE CONCENTRATION IN COLOMBO USING INVERSE DISTANCE WEIGHTED AND LOCAL RADIAL BASIS FUNCTION METHODS <i>W.H.D.T. Karunaratna*; K.M.N. Dissanayake; M. Dewasurendra</i>	ODD HARMONIOUS LABELLING OF LADDER GRAPHS <i>K.M.P.G.S.C. Kapuhennayake*; M.M.C. Dilshan; A.A.I. Perera</i>	OVERCOMING BEHAVIOURAL PROBLEMS OF A GRADE EIGHT STUDENT: AN ACTION RESEARCH <i>W. Chandrasena*; A. Herath</i>
10.00AM - 10.15AM	THE ANT COLONY OPTIMIZATION ALGORITHM TO SOLVE THE TRAPEZOIDAL TRANSPORTATION PROBLEMS <i>E. M. T.D.K Ekanayake*; E.M. U.S.B. Ekanayake</i>	EXPLICIT FORMULAS FOR HIGHER ORDER APPROXIMATIONS OF FIRST AND SECOND DERIVATIVES WITH APPLICATIONS <i>J.A.M.P. Weerasinghe*; W.A. Gunarathna; M.A.M. Mohommad</i>	SKOLEM AND HOOKED SKOLEM SEQUENCES UPTO ORDER EIGHT <i>A.M.S.L.K. Athapaththu*; A.M.C.U.M. Athapattu,</i>	MATHEMATICS TEACHER'S PERCEPTIONS ON FLIPPED CLASSROOM TOWARDS THE 21ST CENTURY SKILLS <i>I.S. Eriyagama*</i>
10.15AM - 10.30AM	ARTIFICIAL BEE COLONY ALGORITHM TO SOLVE LINEAR FRACTIONAL TRANSPORTATION PROBLEM WITH VARYING DEMAND AND SUPPLY <i>R. Gunarathne*; W. N.P. Rodrigo</i>	A NOVEL SECOND-ORDER FINITE DIFFERENCE APPROXIMATION FOR FISHER EQUATION <i>C.T. Fernandopulle*; W.A. Gunarathna; M.A.M. Mohamed</i>	INCIDENCE COLORING OF STAR GRAPHS <i>M.M.C. Dilshan*; A.A.I. Perera</i>	EXPLORING MATHEMATICAL LANGUAGE OF TEACHERS IN TEACHING THE CONCEPT OF LIMIT <i>R.N.N. Rathnayake*; G.N. Jayakody</i>
10.30AM - 10.45AM	PATTERN GENERATION FOR TWO-DIMENSIONAL CUTTING STOCK PROBLEM <i>S.M. Infas*; W.N.P.Rodrigo</i>	A NEW FOURTH ORDER CRANK-NICOLSON DIFFERENCE APPROXIMATION FOR DIFFUSION EQUATION <i>S.S. Nawaratne*; W.A. Gunarathna; M.A.M. Mohamed</i>	A NOVEL CRYPTOGRAPHIC SCHEME USING THE SUPER MAGIC COVERING OF WHEEL GRAPHS <i>A.M.S.L.K. Athapaththu, R.M.V.V. Bandara*; P.G.R.S. Ranasinghe</i>	ACHIEVEMENT OF COMPETENCY IN MATHEMATICS BY THE GRADE FIVE STUDENTS IN PATHAHEWAHETA EDUCATION DIVISION, SRI LANKA <i>W. Chandrasena*; K.D.M.S.D. Dissanayake</i>

ICMME 2023 | Technical Sessions | Saturday, 15th July 2023 | 11.45am-1.30pm

	Session A2	Session B2	Session C2	Session D2
<i>Time\ Session Chairs</i>	<i>Dr. HTK Abeyundara Dr. WN Rodrigo</i>	<i>Dr. R De Silva Dr. MIM Ishak</i>	<i>Dr. U Wijesuriya Dr. PGR S Ranasinghe</i>	<i>Prof. S Yatigammana Dr. RD N Thilakarathna</i>
11.45AM - 12.00PM	DESIGNING THE PARAMETERS AND SELECTING THE OPERATORS FOR THE GENETIC ALGORITHM TO SOLVE THE VEHICLE ROUTING PROBLEM <i>S.R. Gnanapragasam*</i> ; W.B. Daundasekara	DEVELOPING AN INTEGER LINEAR PROGRAMMING MODEL TO OPTIMIZE NURSE-SCHEDULING: A CASE STUDY <i>A.A.D.H. Ishara*</i> ; W.B. Daundasekara	COMPUTING H-FUNCTION OF A DOUBLY CONNECTED REGION FORMED BY DELETING A SLIT FROM THE UNIT DISC <i>M. Arunmaran*</i>	INVESTIGATION OF FACTORS ASSOCIATING WITH G.C.E. (ORDINARY LEVEL) FAILURES IN WESTERN PROVINCE <i>N. Perera; W. Chandrasena*</i> ; A. Amarasinghe
12.00PM - 12.15PM	A LOCAL SEARCH BASED HYBRID GENETIC ALGORITHM FOR THE VEHICLE ROUTING PROBLEM WITH SIMULTANEOUS PICKUP AND DELIVERY <i>P.V.V. Viduranga*</i> ; M.K.D.D. Sandaruwan	PORTFOLIO REBALANCING IN THE PRESENCE OF TRANSACTION COSTS <i>M.W.M.L. Vidumali*</i> ; S.A.A. Nishantha; U.G.I.G.K. Udagedara	SOME PROPERTIES OF TOPOLOGICAL FUZZY METRIC SPACE AND EXAMPLES OF FUZZY METRIC SPACE <i>N. Kajan*</i> ; K. Kannan	EFFECTIVENESS OF MOTIVATIONAL STRATEGIES ON THE PERFORMANCE IN MATHEMATICS OF GRADE SIX STUDENTS <i>M.P.M. Perera*</i>
12.15PM - 12.30PM	A DATA DRIVEN APPROACH FOR SIGNATURE VERIFICATION <i>H.D.A.W. Subawickrama*</i> ; S.A.A Nishantha; M. Mohommad; U.G.I.G.K. Udagedara	A MANUFACTURES AND BUYERS INTEGRATED PRODUCTION INVENTORY SUPPLY CHAIN MODEL WITH UNEQUAL SIZE OF BATCH TRANSFER <i>M.S.M. Hisam*</i> ; W.B. Daundasekara; W.N.P. Rodrigo	COMPUTING MULTI-DIMENSIONAL PERSISTENT HOMOLOGY TO STUDY PROTEIN STRUCTURES <i>L.R.M.K.R Jayathilaka*</i> ; A.K. Amarasinghe	RELATIONSHIP BETWEEN PRIMARY TEACHERS' PEDAGOGICAL CONTENT KNOWLEDGE AND STUDENTS' ACHIEVEMENT IN MATHEMATICS <i>W. Chandrasena*</i> ; <i>U.J.D.T. Jayasingha</i>
12.30AM - 12.45PM	AN ALTERNATIVE APPROACH TO PROFIT MAXIMIZATION USING THE TRIANGULAR FUZZY TRANSPORTATION PROBLEM <i>E.M.D.B. Ekanayake*</i> ; E.M.U.S.B. Ekanayake	UNBALANCED MAXIMIZATION ASSIGNMENT PROBLEM WITH MULTIPLE ASSIGNMENTS <i>C.R. Welgama*</i> ; W.N.P. Rodrigo	ALEXANDROV UNIFORMITY OF INVERSE SEMIGROUPS <i>M.W.S. Randunu*</i> ; K.M.N.M. Chathuranga ; A.M.C.U.M. Athapattu	QUALITATIVE EXAMINATION OF FACTORS AFFECTING G.C.E. (ORDINARY LEVEL) FAILURES IN WESTERN PROVINCE, SRI LANKA <i>N. Perera; W. Chandrasena*</i>
12.45PM - 1.00 PM	MODELING THE TEA PRICES AT THE SRI LANKA TEA AUCTION: A TIME SERIES APPROACH <i>P. Selvarajah*</i>	FINITE DIFFERENCE METHOD TO SOLVE ONE-DIMENSIONAL SHALLOW WATER EQUATIONS <i>M.M. Zathiha*</i> ; M. Dewasurendra	OPERATOR NORM ON LINEAR FUNCTIONAL ON SUBSPACE OF THE HARDY SPACE OF THE UNIT DISC AND CONSEQUENCES <i>H.R.H.S. Waidyarathna, D. Thilakarathna*</i>	ACTIVITY BASED APPROACH IN TEACHING GEOMETRY FOR LOW ACHIEVING STUDENTS IN GRADE TEN; AN ACTION RESEARCH IN SELECTED SCHOOL IN JAYAWARDANAPURA EDUCATION ZONE, SRI LANKA <i>D.M.A. Warushavithana*</i>

<p>1.00PM - 1.15PM</p>	<p>IMPROVING THE PRODUCTION EFFICIENCY IN APPAREL INDUSTRY THROUGH STATISTICAL PROCESS CONTROL: A CASE STUDY</p> <p><i>S.T.R.D. Thalwaththe*</i>; <i>W.B. Daundasekara</i></p>	<p>A NEW APPROACH TO BI-OBJECTIVE TRANSPORTATION PROBLEM</p> <p><i>N. Amarasinghe*</i>; <i>W.N.P. Rodrigo</i></p>		<p>EFFECTIVENESS OF USING IQ QUESTIONS IN ENHANCING PERFORMANCE OF GRADE SIX STUDENTS IN MATHEMATICS: AN ACTION RESEARCH</p> <p><i>W. Chandrasena*</i>; <i>R. Wanamalee</i></p>
<p>1.15PM. - 1.30PM</p>		<p>FORECASTING AND EXAMINATION OF DYNAMIC BEHAVIOUR OF THE GLOBAL FINANCIAL DEVELOPMENT INDEX</p> <p><i>R.R.W.G.B.M.K.B. Hulangamuwa*</i>; <i>R.B.N. Dissanayake</i>; <i>P.K. Premachandra</i></p>		

ICMME 2023 | Technical Sessions | Saturday, 15th July 2023 | 2.00pm-3.45pm

	Session A3	Session C3	Session D3
<i>Time\ Session Chairs</i>	<i>Dr. KRRI Bandara Dr. WA Gunarathne</i>	<i>Dr. Jayantha Senadeera Dr. AMCUM Athapattu</i>	<i>Dr. WD Chandrasena Dr. AK Amarasinghe</i>
2.00PM - 2.15PM	MATHEMATICAL MODELLING FOR FINGERO-IMBIBITION DURING CARBONATED WATER FLOODING WITH MAGNETIC FIELD EFFECT <i>C.W. Sahabandu*; M.Dewasurendra</i>	GRACEFUL LABELING OF THE ROTATED IRREGULAR CYCLIC SNAKE GRAPHS <i>W.K.M. Indunil*; K.N. Kaluarachchi; S.M.T. Ruwan; A.A.I. Perera</i>	IMPROVING THE MATHEMATICS RELATED VOCABULARY USING BILINGUAL GLOSSARIES: AN ACTION RESEARCH IN A 1AB MULTI-ETHNIC SCHOOL IN CENTRAL PROVINCE <i>M.K. Perera*</i>
2.15PM - 2.30PM	MDDIM SOLUTIONS FOR NON-LINEAR FUZZY PARTIAL DIFERENTIAL EQUATIONS <i>C.W. Sahabandu*; M.Dewasurendra</i>	ODD PRIME LABELING OF DOUBLE SNAKE GRAPH <i>K.H.C. De Silva*; A.A.I. Perera</i>	A STUDY ON THE USE OF GEOGEBRA COMPUTER SOFTWARE IN TEACHING AND LEARNING GEOMETRY CONCEPTS.(AN EXPERIMENTAL RESEARCH CONDUCTED USING GRADE 10 STUDENTS FOR CIRCLE THEOREMS, IN DENUWARA EDUCATIONAL ZONE) <i>L.V.P.K. Jayawardana*</i>
2.30PM - 2.45PM	A FRACTIONAL ORDER MATHEMATICAL MODEL FOR THE SPREAD OF COVID-19 WITH QUARANTINE AND ISOLATION CONTROL STRATEGIES. <i>S.K.D.T.D. Korala*; L.W. Somathilake</i>	AN ALGORITHM FOR RAINBOW COLORING OF THE HIGHER ORDER EXTENSION OF SANDAT GRAPH <i>G.W.M.M.K. Dheerasinghe*, A.A.I. Perera², P.G.R.S. Ranasingh; K.D.E. Dhananjaya</i>	TECHNIQUES THAT CAN BE USED TO ENHANCE THE GEOMETRICAL SKILLS OF SLOW LEARNERS: AN ACTION RESEARCH OF GRADE 08 MONOLINGUAL STUDENTS IN A SELECTED SCHOOL IN COLOMBO <i>M.K. Perera*</i>
2.45AM - 3.00PM	THE EXTENDED AUXILIARY EQUATION METHOD FOR THE NONLINEAR SCHRÖDINGER EQUATION WITH VARIABLE - COEFFICIENT <i>D. Thavarajah*; T. Mathanaranjan</i>	SOME TOPOLOGICAL INDICES OF FIRECRACKER GRAPHS <i>J.A.D.C.M. Alwis*; K.K.K.R. Perera</i>	ACTION RESEARCH ON IMPROVING NUMBER SENSE REGARDING MATHEMATICS SUBJECT OF TWO GRADE FOUR STUDENTS <i>R.G.J. Nirasha*</i>
3.00PM - 3.15 PM	IMMUNITY WANING DYNAMICS OF COVID-19 THROUGH A MATHEMATICAL MODEL <i>B.A.P.N. Sandaruwini*; L.W. Somathilake</i>	RADIO ARITHMATIC MEAN LABELING OF PENDANT GRAPHS <i>G.H.S.N. Weerasinghe*; A.A.I. Perera</i>	EMOTIONAL AND BEHAVIORAL INTERACTIONS OF STUDENTS IN THE CLASSROOM <i>M.H.S. Segumathar*; N.M. Chathuranga; M. Dewasurendra</i>
3.15PM - 3.30PM	A TWO-SEX AGE-STRUCTURED POPULATION DYNAMICS MODEL FOR THALASSEMIA TRANSMISSION <i>A.M.P. Chandrasiri*; T.H.K.R. De Silva</i>	CHROMATIC POLYNOMIAL OF A SPECIAL TYPES OF LADDER GRAPH <i>E.H.W. Weerabaddana*; A.A.I. Perera</i>	A COMPARATIVE STUDY ON EDUCATION SYSTEM IN SRI LANKA AND FINLAND TO THE PEDAGOGY OF MATHEMATICS EDUCATION <i>M.S.M.N.M. Noohu*; N.M. Chathuranga; M. Dewasurendra</i>
3.30PM - 3.45PM	HOMOTOPY ANALYSIS METHOD FOR NONLINEAR SINGULAR BOUNDARY VALUE PROBLEMS OCCURING IN VARIOUS PHYSICAL SITUATIONS <i>P.D.D.A. Chandralal*; M. Dewasurendra</i>		TASK-BASED TEST ON THE DEVELOPMENT OF THE ABILITY TO USE BASIC MATHEMATICS IN PRACTICE OF THREE EIGHT-GRADE STUD <i>P.K. Rathnayake*</i>

