



St. Xavier's College (Autonomous)

(Recognized as "College with Potential for Excellence" by UGC & Accredited at A⁺⁺ grade with CGPA of 3.66/4 in IV Cycle by NAAC)

Palayamkottai – 627 002

ANNUAL REPORT 2023 - 2024

DEPARTMENT OF MATHEMATICS (Shift – I)

The activities of the Mathematics Association for the academic year 2023-24 were inaugurated by Rev. Dr. S. Mariadoss S.J., the Principal on 17.07.2023. Dr. S. Somasundaram, former Professor of Mathematics, Manonmaniam Sundaranar University, the chief guest of the inaugural function, delivered a lecture on 'The LUB Axiom'. Students of both Shifts of Department of Mathematics participated in the function. Through the Memorandum of Understanding (Shri Meera Learning Academy), a special talk was arranged on 25.09.2023 entitled 'Unlock Your Success Chips'. The resource person of the programme was Dr. A. Faritha Begam, Associate Professor of St. Ignatius College of Education (Rtd.), Palayamkottai. On 24.11.2023, a talk on 'Solutions of Linear Differential Equations Via Linear Algebra' was delivered by Dr. A. Selvakumar, Post Doctoral Fellow of the Indian Statistical Institute, Bangalore. A workshop was organized from 15.11.2023 to 17.11.2023 entitled 'An Intra-collegiate Three Day Workshop on Problem Solving in Analysis, Algebra and Integral Equations' which helped the CSIR/GATE/JAM aspirants to equip themselves with better understanding of the subjects. The Department Professors: Prof. J. Amal Rayan, Prof. D. Saranya, Prof. Nirmal Kumar, Dr. S. Nithya, Dr. S. Philo and the alumnus Mr. P. Vignesh Raja were the resource persons. On 11.11.2023, a special talk was conducted to develop Soft Skills among students. The resource person was Mr. P. Joyal Roy, IIT Foundation and Integrated Course Co-ordinator, Soft Skill Trainer in Velammal Bodhi Campus, Dindugul. From 06.12.2023 to 07.12.2023, the Department organized 'A two day workshop on 'Linear Algebra' which focused on basic concepts of Linear Algebra with suitable examples and applications. The Resource person was Dr. U. Kumaran, Lecturer in Govt. Polytechnic College, Kottur, Theni. He covered the topics in Vector Spaces, Subspace and Basis. The resource person Dr. V. Sankar Raj, Assistant Professor of Department of Mathematics, Manonmaniam Sundaranar University, Tirunelveli gave a lecture on Linear Transformations, Properties of "Linear Transformations and

Applications of Linear Transformations”. The resource person Dr. I. Jeyaraman, Assistant Professor of Department of Mathematics, National Institute of Technology, Trichy, taught about the Diagonalizability test, Algebraic multiplicity, Geometric multiplicity, Eigen values and Eigenvectors. The resource person Dr. V. P. Ramesh, Assistant Professor of Department of Mathematics, Central University, Tiruvarur gave a lecture on ‘Canonical Forms in Linear Algebra with Some Real Life Applications’. A total of 148 delegates participated in this workshop. On 11.01.2024, an IIT Student Mr. S. Vignesh kumar, Alumnus of our Department gave a motivational talk for JAM aspirants under the Career Guidance Programme. Rev. Dr A. Antonysamy S.J Golden Jubilee Endowment Lecture was conducted on 22.01.2024. Special lectures on the topics ‘Some New Trends of Research in Graph Theory’ and ‘Fuzzy Information System and its Applications’ were delivered by the invited speakers Dr. R. Kala, Professor of Manonmaniam Sundaranar University, Tirunelveli and Dr. V. Lakshmana Gomathi Nayagam, Associate Professor of NIT, Tiruchirappalli. The Math Fest 2024 was held on 31.01.2024. 14 Colleges from the southern part of Tamil Nadu participated in this programme. Dr. B. Prakash, Lecturer of Government Polytechnic College for Women was the Quiz master. A total of 170 students from various institutions participated in it and Gandhigram Rural Institute, Dindigul won the first prize. Through the Memorandum of Understanding (Learning.Com), a special talk entitled ‘GEOGEBRA – A Global Platform to Learn Math’ was arranged on 12.02.2024. The resource person of the programme was Dr. V. Thanga Murugeswari, Assistant Professor of Er. Perumal Manimegalai College of Engineering, Hosur. ‘An International Conference on Applications of Mathematics in Data Science’ was conducted from 27.02.2024 to 28.02.2024 in collaboration with PG Department of Data Science. Around 140 participants got benefited and 64 participants presented papers.



The 39th State Level Inter-Collegiate PG Quiz Competition and the Valedictory Function of the Mathematics Association of the Academic Year 2023-24 was held on 29.02.2024 at Loyola Hall. Rev. Dr. G. Pushparaj S.J., Secretary gave the Valedictory address and distributed prizes to the winners and the participants. The Standard Fireworks Rajaratnam College for Women, Sivakasi won the first prize. Dr. M. Saravanan, Guest Lecturer of Govt. Arts and Science College, Sattur was the quiz master. The activities of the Mathematics Association for the academic year 2023-24 came to an end with this programme. Dr. A. Vinoth was the Staff in-charge for the academic year 2023-24.

DEPARTMENT OF MATEMATICS (Shift – II)

The Mathematics Association's inaugural function took place on 17.07.2023. The chief guest Dr. S. Somasundaram, Former Professor of Mathematics, Manonmaniam Sundaranar University delivered a lecture on “LUB Axiom”.

1. In academic year 2023-24, the Department of Mathematics started a forum namely “Infinito” to conduct lectures. On 18.07.2023, under this forum, Ms. G. Ani Sujithra –(22PMA501) delivered a guest lecture on “How to Start Business”.
2. On 17.08.2023, the association organized a Career Guidance Programme for UG Students. The chief guest Mr. R. Christhu Raja, Assistant Professor, Department of Physics, St. Xavier’s College (Autonomous), Palayamkottai delivered a lecture on “Strategies and Approaches to Face Competitive Exams”
3. On 24.11.2023, the Mathematics Association organized a guest lecture on “Linear Algebra, Why Me? by Basis” for PG students. Dr. A. Selvakumar, A Post Doctoral Fellow, Indian Statistical Institute, Bangalore was the resource person.
4. A two day workshop on ‘Linear Algebra’ was organized by the PG and Research Department of Mathematics of Shift-I and Shift-II on 06.12.2023 and 07.12.2023.
5. Session I was handled by Dr. U. Kumaran on the topic “Vector Spaces and Basis”. Sessions II&III were handled by Dr. V. Sankar Raj on the topic “Linear Transformation and Matrices”. Session IV was handled by Dr. I. Jeyaraman on the topic “Diagonalization”. Sessions V&VI were handled by Dr. V. P. Ramesh on the topic of “Canonical Forms”. A total of 40 delegates from various other institutions participated in this workshop.

6. Math-Fest 2024 was held on 31.01.2024. A total of 170 delegates from various institutions participated in this programme.
7. A two day International Conference on ‘Applications of Mathematics’ in Data Science was organized by the PG department of Data Science and PG and Research Department of Mathematics of both Shift-I and Shift-II on 27.02.2024 and 28.02.2024.
8. Session I was handled by Dr. A. Andrew Arockia Celsy on the topic “Fractals, Archetypes and Big Data: A Multidisciplinary Approach towards the Intrinsic Nature of Patterns”. Sessions II & III were handled by Dr. T. Rajaretinam on the topic “Gradient Descent Optimization Techniques and its Applications in Data Science”. Session IV was handled by Prof. Glenn Hurlbert on the topic “Important Techniques in Graph Pebbling”. Session V was handled by Dr. V. P. Ramesh on the topic “Machine Learning Algorithms for Image Classification in Health Care”. Session VI was handled by Dr. T. Arumuga Maria Devi on the topic "Recent Research Trends in Hyperspectral Data Processing". In this conference, totally 58 papers were presented.
9. State Level Inter-Collegiate PG Quiz Competition 2024 was held on 29.02.2024. A total of 45 delegates from various other institutions participated in this programme.

10. TABLE.8.a . PAPERS PUBLISHED IN JOURNALS (2023.2024)

S. NO	Name of the Teacher	Name of the Department	Title of the Paper	Name of the Journal	Volume No/ Issue No/ Page No /year	ISSN No. / e.ISSN No.	Cited in Web of Science / Scopus Indexed/UGC Approved / Not Found in UGC.CARE List	National / International	Impact Factor	Month & Year of public ation
1	S. Sethu Ramalingam	Mathematics	Forcing Weak Edge Triangle Free Detour Number of a Graph	Palestine Journal of Mathematics	Vol.12, No.1 (2023), pp.976.980.	2219.5688	Scopus	International		
2	F. Patrick	Mathematics	Total Absolute Edge irregularity strength of Tp.tree related graphs	Proyecciones Journal of Mathematics	Vol. 42, No. 6, (2023), pp. 1597.1614.	0716 .0917	Scopus	International		
3	F. Patrick	Mathematics	Edge irregularity strength of some related graphs to Tp.tree	Jordan Journal of Mathematics and Statistics	Vol. 16, No. 2, (2023), pp. 233.248.	2227 .5487	Scopus, Web of Science	International		
4	J. Vinolin	Mathematics	Topological Indices on Splitting, Shadow and Total Graphs	Ars Combinatoria	Accepted	0381.7032	Scopus	International		
5	Dr.Y. Therese Sunitha Mary	Mathematics	Strong Nonsplitdomsaturati on number of a graph	Discrete Mathematics, Algorithms and Applications			Scopus Indexed	International	0.58	Accept ed on 12.09. 2023
6	Dr.Y.Therese Sunitha Mary	Mathematics	Roman Detour Domination Number of Generalized Hypercube Networks	Discrete Mathematics, Algorithms and Applications			Scopus Indexed	International	0.58	Accept ed on 17.01. 2024
7	S. Nithya	Mathematics	Identifying locating sets in Zero divisor graph of a lattice	Indian Journal of Natural Sciences	375.380	0976.0997	Web of Science	International		2023

8	Rev. Dr. S. Arul ravi. S. J.	Mathematics	On Branciary Metric Spaces the best proximity point result	AIP Conference proceeding		2649				2023
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TABLE.8.b – PAPERS PUBLISHED IN CONFERENCE / SEMINAR PROCEEDINGS (2023.2024)

S. No	Name of the Teacher	Department	Title of the Paper	Title of the Proceedings	National / International	(Place, Publisher, Year, Page No.)	ISSN / ISBN No.
1	S.Sahayarajjoseph Nirmalkumar	Mathematics	Best proximity pair theorem for cyclic Reich type contraction mapping on topological spaces	Proceedings of the National Conference on Algebraic Graph Theory, Graph Theory and Analysis (MSUMEC)	National	Manonmaniam Sundaranar University, 2023, 109.114	978.81.965238.3
2	Dr.Y.Therese Sunitha Mary	Mathematics	Split Domination Integrity of Generalized Transformation Graphs	Inter disciplinary national conference on Mathematical, Physical and Chemical Advancements 2024	National	Sri Bharathi Arts and Science college for women, Trichy. 08th & 09.Feb, 2024.	978.81.969971.6 .8
3	Dr.Y.Theresesunitha Mary	Mathematics	Inverse Split Domination Integrity of Generalized Transformation Graphs	Recent Trends in Mathematics and its Applications	International	AIMAN College of Arts and Science for Women, Trichy. 23.Feb.2024	
4	Dr.Y.Therese Sunitha Mary	Mathematics	Domination Integrity of Generalized Transformation Graphs	7 th International Conference on recent advances in Mathematical sciences and its applications	International	Jaypee Institute of Information Technology, Noida, INDIA. 29.Feb.March 02,2024 AIJR Publisher, P No 26.	978.81.965621.7 .5 978.81.965621.4 .4
5	Dr.Y.Therese Sunitha Mary	Mathematics	The Detour Domination Number of Jump Graph	Recent Trends in Mathematics and its Applications	International	AIMAN College of Arts and Science for Women, Trichy.	

						23.Feb.2024	
6	S. Nithya	Mathematics	Metric And Upper Dimensions Of Zero Divisor Graphs Associated To Lattice	International Conference on Recent Trends in Applied Mathematics	International	Accepted	.
7	S. Nithya	Mathematics	Some Boundaries on Metric Dimension of Unit Graph	International Conference on Recent Trends in Mathematics and its Applications	International	Accepted	.