



Math Spark

Newsletter

ISSUE : 3

SEPTEMBER 2023



DEPARTMENT OF MATHEMATICS

Arul Anandar College (Autonomous),
Karumathur – 625 514, Madurai.

A commemoration of more than 50 years of Math Journey at AAC

Editor's Desk

The Department of Mathematics has spread its wings of victory in all the endeavours of association activities, student progression, faculty empowerment and alumni networking during this academic year. The department remembers with gratitude and gladness, the unconditional contribution and commitment of the alumni for the betterment of the student community. The successful accomplishment of the National Conference on *Recent Advances of Pure and Applied Mathematics with Industrial Applications* and *MATAAC-23*, a State level Intercollegiate Mathematical Competition on 9-10 March 2023 together mark the heritage of the department in kindling research aspiration of the young researchers and promoting the mathematical skills of the budding math masters. The department has vested its time and energy in conducting a *Math Model Competition* exclusively for the students of nearby rural schools to enrich their mathematical affinity. I appreciate the faculty members of the department for serving the students as effective mentors, meticulous internship guides and benefactors and for playing a vital role in setting them in the right channels of holistic development.



Significant Events

Alumni Networking & Contribution



Like a magnet that attracts the iron fillings, the spirit of being the alumni of the Department of Mathematics has strengthened the alumni networking and bondage with the department. As a reflection of it, the alumni of 1981-84 contributed a computer with printer device of high definition worth Rs. 70,000/- on 05 Nov, 2022 for the welfare of the student community. The General Body meeting for the alumni also took place on the same day and the alumni together made the day more memorable and meaningful.

Inspection for Research Centre Approval

The awaiting milestone of the Department is acquisition of Research Centre status. Followed by the first phase of inspection which took place on 25 April, 2021, the second phase of inspection took place on 27 July, 2022. The Madurai Kamaraj University appointed Dr. S. Muralisankar, Associate Professor, Department of Mathematics as the university nominee. He appreciated the contributions of the department in the field of research and suggested few ideas of taking research to next progressive phases. The inspection ended with the final meeting at the Principal's office.



Curriculum Enhancement



The Department is very keen on framing learner centric curriculum and in designing the syllabi of the courses with the inclusion of advanced concepts. The Board of Studies meeting was conducted on 10 January 2023 and the syllabi of the courses offered in the III & IV semesters of both UG and PG programmes were presented. The meeting was headed by Dr. J. Xavier Adaikalaraj, Associate Professor and Head, Department

of Mathematics together with the *University Nominee*, Dr. R. Mangayakarasi, Assistant Professor of Mathematics, EMG Yadava Women's College Thiruppalai, Madurai.; *External Members*, Dr. S. Vimala, Assistant Professor of Mathematics, Mother Teresa Women's University, Kodaikanal and Dr. R. Muthuraj, Assistant Professor of Mathematics, HH The Rajah's College (Autonomous) (Affiliated to Bharathidasan University, Trichy), Pudukottai; *Industrial Expert*, Mr. S. Amalan, Senior Software Engineer, Korcomptenz Inc., Chennai; *Alumni Representative*, Mr. M. Dileepan, Assistant Professor of Mathematics, PMT College, Usilampatti and other faculty members of the department.

The college has decided to revise the existing structure according to the guidelines of TANSCHÉ and to introduce a revamped structure from the academic year 2023-24 onwards. In align with it, a Board of Studies meeting was conducted on 28 March 2023 to introduce the new structure and the syllabi of the courses offered in the I and II semesters of both UG & PG programmes. The newly proposed structure comprises several skill development courses and accommodates many new mathematical courses.



Faculty Achievements

The faculty of the Department of Mathematics are multifaceted and multi skilled. Besides teaching they vest their interest in engraving themselves in the dimensions of research and new skill sets.

Additional Courses

- Dr. M. Gilbert Rani has completed a two year Diploma Programme on Mathematics for Data Science, at Rajagiri School of Engineering & Technology, Kochi, Kerala.
- Dr. Nivetha Martin has completed the following NPTEL courses
 - 4 weeks course on Stress Management in September 2022
 - 8 weeks course on Accreditation And Outcome Based Learning in September 2022
 - 4 weeks course on Advances in Strategic Human Resource Management in April 2023
 - 8 weeks course on Fuzzy Logic and Neural Networks in April 2023

Project

- Dr. M. Sajan Joseph & Dr. R. Premkumar have received the seed money project, entitled “The Adaptive Capability of Higher Education Student’s Academic Resilience on Academic Stress and Academic Performance in the Post Covid-19 Period at Arul Anandar College and its Environs using Soft Set Techniques” in October 2022.
- Dr. I. Pradeepa & Ms. N. Angel have received the seed money project, entitled “Machine Learning Algorithms in Diagnosing and Classifying Mastitis Disease in Dairy Cattle with Special Reference to Usilampatti Block” in October 2022.

Research

The faculty members have contributed several research articles, books and book chapters. The articles are also published in reputed journals indexed in SCOPUS, WOS and UGC CARE List. The faculty members have presented their articles in various conferences both at national and international level. Also they have participated in seminars, workshops on diverse topics to enrich their knowledge.

Publications of Books	03
Contributions of Book Chapters	03
Publication of Articles in Journals	31
Paper Presentations	14
Participation in Academic Programmes	14

Research Scholars

Under the guidance of our faculty, 3 research scholars have submitted their Ph.D. thesis and one scholar has completed Pre Ph.D. viva-voce.

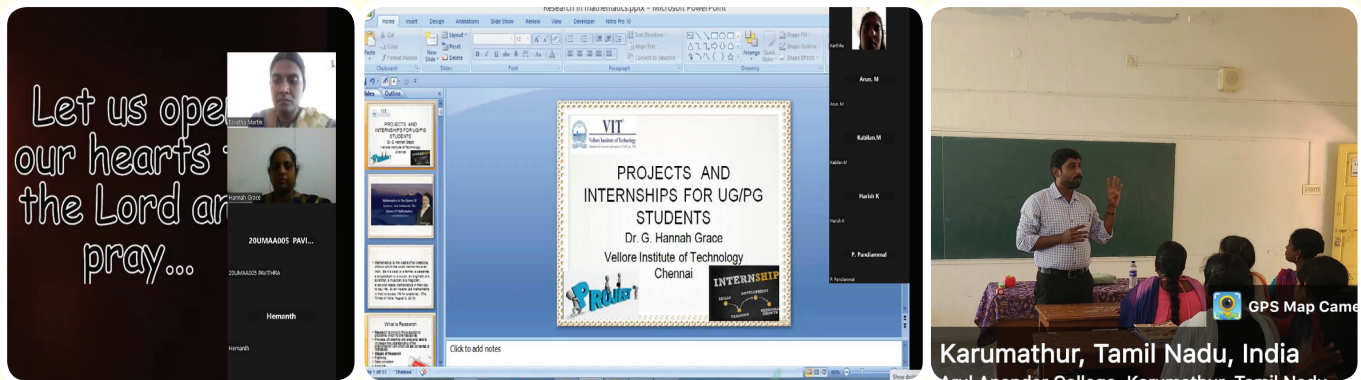
Sharing of Expertise

The expertise of the faculty members in the domain of Data Analytics, Skill Development, Cognitive Modelling and Outcome Based Education have designated them as resourceful resource persons. The faculty members have shared their expertise to the students and faculty members of other various institutions.



Name of The Staff	Title of the programme	Institution and Place	Date
Dr. M. Gilbert Rani	Guest lecture on Predominant Role of Mathematics in Machine Learning	V.V. Vanniaperumal College for Women, Viruthunagar	17.08.2022
	Lecture on Design Thinking in the Two Day Leadership and Skill Development Programme on “Authentic and Accountable Leadership”	Arul Anandar College, Karumathur	25.08.2022
	Leadership Development Program	University Grants Commission, Human Resource Development Centre, Sagar	21.09.2022
	Chaired Paper presentation session of the International conference on New Avenues in Applied Sciences	Lady Doak College, Madurai	02.02.2023
	International conference on Cyber Security Challenges in the Modern Era	Ethiraj College for women (Autonomous), Chennai-08	07.02.2023
	MATH-STAR2K23	Morning Star College, Kamuthi	10.02.2023
	External Examiner of Project & Viva-Voce	Lady Doak College, Madurai	20.04.2023
Dr. G. Ramkumar	External Examiner of PG Project Viva-voce Examinations	Sri Kaliswari College, Sivakasi	07.06.2022
Dr. Nivetha Martin	Faculty Development Programme PO & CO Mapping & Attainment	Internal Quality Assurance Cell (IQAC), V.O.Chidambaram College, Thoothukudi	08.07.2022
	Workshop on Framework of Outcome Based on Revised Bloom’s Taxonomy	Manonmaniam Sundaranar University, Tirunelveli	30.08.2022
	Dominance of Mathematics in Artificial Intelligence	JACMAT Fest – 2022 at Jayaraj Annapackiam College for Women, Periyakulam	19.10.2022
	National Level Seminar on Recent Trends in Applied Mathematics	St.Antony’s College of Arts and Sciences for Women, Dindigul	1.11.2022
	External Member of the Academic-Audit	G.T.N Arts College, Dindigul	16.11.2022
	Faculty Development Programme on Assessment Based on Revised Bloom’s Taxonomy	Annai Hajira Women’s College, Tirunelveli	15.12.2022
	New Trends in Mathematical Applications in National Webinar on Mathematical Applications	Mother Teresa Women’s University, Kodaikanal	22.12.2022
	State level workshop on Overview of Learning Outcome based Curriculum Framework	Holy Cross College, Nagercoil	15.02.2022

MOU Activities



The Department has established a memorandum of understanding with the Department of Mathematics, GTN Arts College, Dindigul on 26 August 2021. In view of it, a guest lecture was organized on 18 October 2022. Dr. C. Subramani, Assistant Professor, Department of Mathematics, delivered a talk to the PG students on the topic, “Graph theory and its Applications”. Also a webinar on Different Dimensions of Internships & Projects in Mathematics was organized for the final year students of both the departments on 18 November 2022. Dr. G. Hannah Grace, Assistant Professor, School of Advanced Sciences, Department of Mathematics deliberated on the areas of Research and Internships with special reference to Mathematics.

Association and Club Activities



The Department of Mathematics is meticulously performing various association activities for widening the mental horizons of the young mathematical minds. The **Inauguration of Mathematics Association and Fresher’s Day** were conducted on 7 September 2022. Dr. P. Vidhya, Assistant Professor & Head, E.M.G Yadava College for Women, Madurai was the resource person.



The Department **Bridge Course** was conducted from 2-5 August 2022 to make the students of first year aware of the fundamentals of mathematics to aid the students get attuned to the new learning environment, also special focus was given to the Tamil medium students to make them overcome the language barriers of learning.



An **Orientation Programme** for the I year students was conducted on 27 September 2022 by the department to make the students gain familiarity on the modalities followed in the college and in the department. The faculty of the department discoursed on curriculum aspects, examination system, college common activities, association activities and discipline. As a result, the students understood their responsibilities and became committed to the department by taking part in all academic, association and extracurricular activities.



A workshop on **Analytical Geometry 3D in Geogebra** was organized for the students of II B.Sc. on 15 September 2022 to make the students gain a working exposure on the Geogebra software. A workshop on **Polynomials and Trigonometric Functions in Geogebra** was conducted for the students of I B.Sc. on 17 October 2022. A workshop on **Tests of Convergence in Geogebra** was conducted for the students of II B.Sc. on 18 October 2022. A workshop on **Inventory Management Skills** was conducted to the students of III B.Sc. on 03 March 2023. These workshops were conducted to upscale the skills of the students.

The **Conclave of Piations** took place on 09 September 2022. Mr. L. Fridolin Immanuel of II M.Sc. and Ms. T. R. Deepthi of III B.Sc. presented on the Significance of Pi to the First year students. A workshop on **Presentation Skills** was conducted to the students of III B.Sc. on 06 March 2023



The **Womentics Club** organized a special guest lecture on **Applications of Mathematics in Computer Science** to the women students of the department on 14 September 2022. Ms. I. Juliet Shanthi, Assistant Professor and Head, Department of Computer Science and Applications, Arul Anandar College served as the resource person.



National Conference



To impart and demonstrate the mathematical knowledge to the student community, the Department of Mathematics organized a One day National Conference on **“Recent Advances on Pure and Applied Mathematics with Industrial Applications”** on 09 March 2023. The resource persons from various fields discoursed on the applications of mathematics in the context of emerging trends in industries. Dr. M. Pitchaimani, Associate Professor & Head i/c, Ramanujan Institute for Advanced Study in Mathematics deliberated on the topic **“Introduction to Dynamical Systems”**. Dr. G. Krishna Kumar, Assistant Professor of Mathematics, University of Kerala, Thiruvananthapuram, Kerala shared his expertise on **“An Overview of Pseudospectra and its Applications”**. Dr. C. Subramani, Assistant Professor of Mathematics, G.T.N Arts College (Autonomous), Dindigul presented an excellent lecture on **“Real life Applications in Graph Theory”**. Ms. J. Roseline Amalarani, Sr. Technical Lead, CNSI, Chennai, shared her ideas on **“Role of Mathematics in Industrial Growth”**. Dr. V. Renuka Devi, Associate Professor, School of Mathematics and Computer Science, Central University of Tamil Nadu, Thiruvarur articulated on the title **“Dynamical Properties of Dynamical Systems”**. Around 15 participants presented their research works on various topics of Mathematics. The

PG students of the department of Mathematics and from other colleges also presented their novel project works. A total of 285 students of our college and 33 outside participants took part in this conference. A total of around 77 papers were presented on various arenas of Mathematics.

MATAAC 2023

The Department of Mathematics organized **MATAAC 2023**, a One day State level Intercollegiate Mathematical Competitions, on 10 March 2023. The students from various colleges in and around Madurai participated in various mathematical competitions such as Math Quiz, Paper presentation, Dumb Charades,



A Beautiful Mind, Ad Math, Poster Presentation and Math Model. Dr. M. Sumathi, Assistant Professor of Mathematics, SVN College, Madurai, served as the Quiz Master. The overall trophy was bagged by the students of Ayya Nadar Janaki Ammal College, Sivakasi. A total of 100 students participated in all the events.

Math Exhibition



To provide a platform for the students to exhibit their creativity and to provide opportunities for enhancing their knowledge and skills in mathematical modelling, **MECHANICS MODEL EXPO** was conducted on 20 March 2023. The students of II B.Sc. Mathematics exhibited various static and working models based on the theoretical concepts of Mechanics. All the students of the department visited the exhibition and it was made a colourful expo by the coordinated efforts of the students.

National Mathematics Day Celebration

The Department of Mathematics celebrated National Mathematics Day on 19 December 2022 to commemorate the birth anniversary of Srinivasa Ramanujan. Dr. G. Prabakaran, Assistant Professor of



Mathematics, Thiagarajar College of Arts and Science, Madurai was the resource person and he delivered an informative talk on “Life and Contributions of Srinivasa Ramanujan”. Poster presentation and Rangoli competitions were also conducted and the students were awarded with prizes and certificates. Dr. S. Savitha Devi, Assistant Professor of Chemistry and Ms. I. Juliet Shanthi, Assistant Professor & Head, Department of Computer Science & Computer Applications served as judges for these competitions.



Pi Day Celebration



The Department of Mathematics also celebrated the Pi Day on 14 March 2023. Dr. A. Chellaram Malaravan, Associate Professor & Head (UG), Department of Mathematics, The American College (Autonomous), Madurai served as the resource person and delivered a delightful lecture on Significance of Pi in Mathematics.

Student's Achievements

Student's Council Elections



Mr. S. Vigneshwaran of III. B.Sc. Mathematics was elected as the Fine Arts Secretary of Shift I and Ms. T. R. Deepthy of III B.Sc. Mathematics was elected as the Women secretary of Shift I. Mr. J. Mukilan and Ms. Vaishali of III B.Sc. Mathematics were elected as the Mathematics Association Secretaries of Shift I & II respectively. Ms. P. Eswari of III B.Sc. Mathematics was elected as the secretary NSS.

Presentations in Conferences

- Ms. A. Sneha & Ms. M. Muhildevi of II M.Sc. Mathematics presented papers in International Conference on New Avenues in Applied Sciences, Lady Doak Collge, Madurai, 02-03 February 2023.
- Mr. J. Vikram Frankie Alen of II M.Sc. Mathematics presented a paper in the International Conference on Research Trends in Contemporary Mathematics (ICRTCM 2023) at Patrician College of Arts and Science, Chennai, 03-04 Feb, 2023.

Inter-Collegiate Competitions

- Ms. G. Maheshwari of III B.Sc. Mathematics, Ms. B. Maria Sathana and Ms. X. Lourdu Sneha of II M.Sc. Mathematics won II prize in the Quiz Competition in the Inter College Meet organized by the Department of Mathematics, VVV College, Virudhunagar on 28 October 2022.
- Ms. P. Eswari and Ms. K. Kowshika of III B.Sc. Mathematics bagged I prize in Math Rangoli event in the Intercollegiate competition organized by Saraswathi Narayanan College, Madurai on 02 March 2023
- Ms. R. Harinica of III B.Sc. Mathematics won I prize in paper presentation competition in the Intercollegiate competition conducted by Fatima College, Madurai on 24 February 2023.
- Ms. M. Divya of III B.Sc. Mathematics won III prize in poetry writing competition organized by the Department of Tamil, The American College (Autonomous), Madurai on 17 March 2023.

- Ms. P. Eswari and Ms. K. Kowshika of III B.Sc. Mathematics bagged II prize in Rangoli & Cultural competitions organized by the Department of Tamil, The American College (Autonomous), Madurai on 17 March 2023.

Inter-Departmental Competitions

- Mr. S. Sarath Kumar of II B.Sc. Mathematics won II Prize in Handwriting competition conducted by the Department of Tamil, AAC on 07 May 2022.
- Ms. M. Divya of III B.Sc. Mathematics won II Prize in Poetry writing competitions Ms. B. Jeevitha & Ms. J. Deepthi of III B.Sc. Mathematics won III Prize in Quiz competition, Ms. P. Eswari and Ms. K. Kowshika of III B.Sc. Mathematics won I prize in Rangoli competition and Ms. G. Maheswari of III B.Sc. Mathematics won I prize in Speech competition organized by the Department of History, AAC on 12 August 2022.
- Ms. M. Swetha of III B.Sc. Mathematics won III prize in poster making competition organized by the Department of Chemistry in view of National Science Day on 21 March 2023.

National Cadet Corps (NCC)



Cadet J. Deepthi and Cadet B. Jeevitha of III B.Sc. Mathematics have successfully completed the National level Ek Bharath Shreshth Bharath (EBSB) camp held at Iddayapatti, Madurai from 24 August to 04 September 2022.

National Service Scheme (NSS)

Ms. P. Eswari and Ms. K. Kowshika of III B.Sc. Mathematics won III prize in District level cultural festival context organized by Nehru Yuva Kendra, Madurai on 24 September 2022.



Women's Day



In view of women's Day, several competitions were conducted on 08 March 2023. Ms. J. Boomika of III B.Sc. Mathematics won III prize in Fascinating Persona competition. Ms. B. Jeevitha and Mr. J. Mukilan won I prize in case studies competition. Ms. J. Deepthi, Ms. B. Jeevitha and Ms. M. Divya won II prize in Group song competition. Ms. T. R. Deepthy received Best Women Leader Award from International Rights Organization & Youth generation Forum.

Camp Fest



Camp Fest is a colourful event that provides an excellent platform for the students to exhibit their talents in arts and music. Our students actively participate in all the events and earn laurels to the department. The students of Mathematics were the overall second runner up in the Camp Fest 2023 that took place on 20 and 21 December 2023.

Sports Day



One of the significant events of AAC's Sports Day is the Marchpast Competition which is organised in a grand manner. On the event of the 53rd Annual Sports Day, our students won the first prize in the Marchpast Competition conducted on 02 September 2022. For consequent six years, our students are bagging prizes in marchpast. Also Ms. G. Maheswari of III B.Sc. Mathematics won third prize in 300 mts dash.

Saral

Saral is a Tamil Drama competition organized by the Department of Tamil. The students of mathematics performed a skit on the theme of self-confidence and won the first prize in Saral 2023 conducted on 14 October 2022.



Theatre Fest

Theatre Fest is an English Drama competition hosted by the Department of English every year. In the Theatre Fest 2023 organized on 09 Feb 2023, our students staged an excellent play on the social theme "The Will of Liberation" and bagged the first prize.



Faculty Exposure Programme



The faculty members of the Department of mathematics together visited Kodaikanal on 10 August 2022. The visit was so refreshing and delightful.

PTA Meet

The Parents - Teachers meeting is periodically conducted to bring the performance and behavioural conduct of the students to the kind notice of the parents. The PTA meetings were conducted on 08 October 2022, 29 October 2022 and 04 March 2023 for UF & PG students.

Mentor Meeting

The Department of Mathematics conducted the mentor meeting for both the students on 26-28 October 2022 and 16 Feb, 2023. During the mentor meetings, the students were encouraged to share their personal problems, learning disabilities and other aspects that interlude their routine activities. The faculty mentors oriented the students on various aspects of channelizing them in right ways.

Educational Tour



A total of 56 students comprising of final year UG and PG students along with 4 faculty members, Dr. M. Sajan Joseph, Dr. M. Gilbert Rani and Dr. R. Premkumar went on a Two day Educational tour to Kerala on 16 and 17 March 2023. The students and staff felt refreshed by gaining experiential learning on real life applications of mathematics.

Internship



The final year UG students (2020– 2023 Batch) completed their 25 days of internship (23.12.2022 - 16.01.2023) at various places such as ELROI Software Solutions, Madurai, Agni Steels, Coimbatore, Vedhasara Common Service Centre, Othakadai, Urban Bank, Usilampatti, Techno Genesis Software Solutions, Madurai. The students have acquired workplace exposure and have earned experiences on the applications of mathematics in real life.

An orientation on Internship programme was conducted to the second year UG students (2021 - 2024 Batch) on April 13 2023 and the internship mentors are assigned.

Placement

The college creates avenues for the students to explore several employment opportunities and also organizes Career Guidance programmes to orient them on personality development and soft skill enhancement. Placement Drives are periodically conducted to provide ample opportunities for the final year students to get on campus placements.



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 Long 77.935656°

Extension Activities

Math Model Competition for Rural Schools



On 10 March 2023, a Math model competition was organized exclusively for the students from the nearby rural schools. Around 100 students actively participated and presented their models and they were given prizes for exhibiting their best performances.

ARISE

ARISE, an extension programme exclusively meant for the second year undergraduate students and it intends to make the students contribute to social transformation of the rural society. The II B.Sc. students actively took part in all the extension programmes. Visits were made to the villages Nathampatti and Othappati regularly and events like street play and awareness rally were also accomplished.



As a part of Naan Mudhalvan scheme, the school students visited the Department of Mathematics on 25 Feb 2023. The significance and employment opportunities of mathematics were presented to the students.

The Department of Mathematics has strategized quality research endeavours in the upcoming academic year 2023-24. At this juncture, I express my heartfelt gratitude to the management and the stakeholders for their persistent support.

Dr. J. Xavier Adaikalaraj
Chief Editor

Editorial Board

Chief Editor

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