MATH-MAZE

A Subject Based Yearly News Letter

DIFFERENTIAL EQUATIONS

XIIth ISSUE – 2018-19

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π - MATH ASSOCIATION

PG DEPARTMENT OF MATHEMATICS

VELLALAR COLLEGE FOR WOMEN (Autonomous)

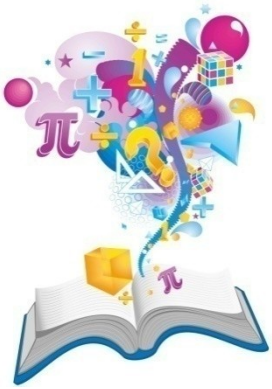
'College with Potential for Excellence"

(Re-accredited with 'A' Grade by NAAC & Affiliated to Bharathiar University, Coimbatore)

Thindal, Erode - 638012, Tamil Nadu.

CONTENTS

- Solutions to the above problems are invited at the earliest. The names of the readers who turn out first in providing answers to the problems will be published and the solutions will be published in the forthcoming issue.



FROM THE EDITORIAL DESK

The Department of Mathematics has been established in the year 2003. It offers B.Sc., Mathematics, M.Sc., Mathematics and M.Phil, Programme.

The Department has to its credit, two National Seminars, two National Conferences, two Intercollegiate meet and International seminar organized on 11th & 12th August 2005, 30th & 31th August 2007, 9th January 2014, 9th February 2017, 13th September 2011, 24th August 2018 and 10th January 2018 respectively. It has celebrated National Mathematical Year on 24th August 2012. On memorial of Ramanujan birthday Math Expo has been organized by the Department since 2013.

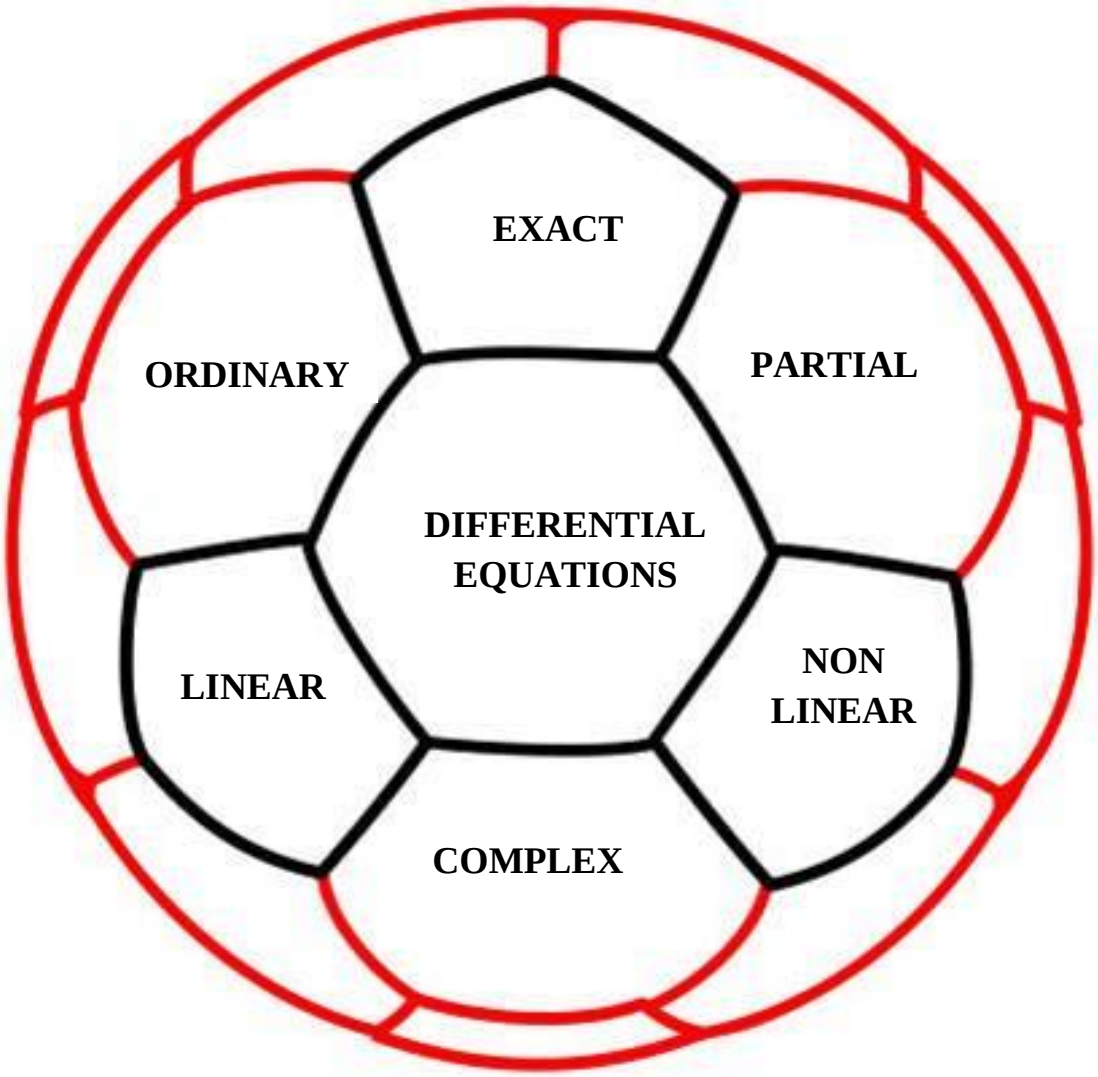
The Department is enriched with fifteen faculty members having wide knowledge in their specializations like Differential Equations, Fuzzy Set Theory, Intuitionistic Fuzzy Set, Graph Theory and Operations Research. The Department has completed two minor research projects funded by UGC and a student's funded projects funded by TNSCST. The Department has produced 56 M.Phil., Research Scholars from 2009 onwards.

The Department adds one more feather by publishing a Subject Based Yearly News Letter incorporating History of Mathematicians, Crossword Puzzles, Cross out Crossword Puzzles, Solutions to the Problems of Previous issue, Departmental Activities and Placement details of the Students of Mathematics.

We welcome the suggestions and criticisms for improvement in the content and presentation of materials of "MATH-MAZE".

EDITORIAL DESK

FRAGMENTS OF DIFFERENTIAL EQUATIONS



"A great deal of my work is just playing with equations and seeing what they give"

HISTORY OF DIFFERENTIAL EQUATIONS

The differential equation is a mathematical equation that relates some functions with its derivatives. Differential equation first came into existence with the invention of calculus by Newton and Leibniz. Issac Newton listed the three kinds of differential equations in 1671 in his work "Methodusfluxionum et serierumInfinitarum". Newton termed derivative as fluxion. He used infinite series to solve differential equations and also discuss the non-uniqueness of solutions.

Jocob Bernoulli proposed the Bernoulli differential equation which is an ordinary differential equation in 1695. The next year Leibniz obtained solutions by simplifying ODE. Historically the problem of vibrating string in a musical instrument was studied by "Jean le Rondd'alembert" discovered the one dimensional wave equation and within ten years Euler discovered the three dimensional wave equation.

The Euler-Lagrange equation was developed in the 1750's by Euler and Lagrange in connection with their studies of the Tautochrone problem. This is the problem of determining a curve on which a weighted particle will fall to a fixed point in a fixed amount of time, independent of the starting point. Lagrange solved this problem in 1755 and sent the solution to Euler. Both further developed Lagrange's method and applied it to mechanics, which led to the formulation of Lagrangian mechanics.

"Pure mathematics is, in its way, the poetry of logical ideas"

In 1822, Fourier published his work on heat flow in *Theorieanalytiquede la chaleur* (The Analytic Theory of Heat) in which he based his reasoning on Newton's law of cooling, namely that the flow of heat between two adjacent molecules is proportional to the extremely small difference of their temperatures.

NOTATION ORIGIN:

The English letter d, in the form of dv or dx/dy was introduced in 1675 by German mathematician Gottfried Leibniz. The 'curly d" symbol ∂, for partial differential equations was first introduced by Marquis de Condorcet in 1770 , then adopted in 1841 by Carl Jacobi.

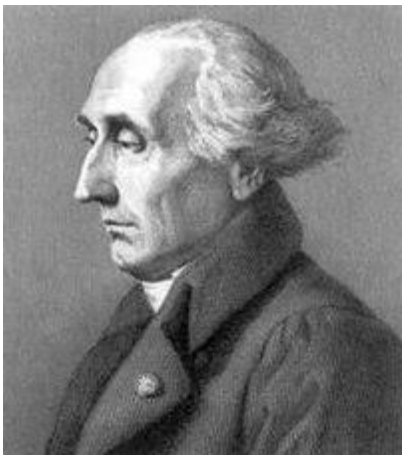
In 1875 Carl Neumann introduced the "d hat" notation to represent clausius version of the inexact differential.

- Laplace equation was defined by Pierre-Simon Laplace (1749-1827)
- Heat Equation was introduced by Fourier in 1822
- Wave Equation was defined by d'Alembert in 1746
- Bernoulli Equation was introduced by Jocob Bernoulli in 1965
- Initial and Boundary value problems was introduced by Augustin Louis Cauchy (1789-1857)

"Mathematics is the art of giving the same name to different thing"

KNOW YOUR MATHEMATICIAN

JOSEPH-LOUIS LAGRANGE



Joseph - Louis Lagrange was an Italian Mathematician and Astronomer. He made significant contributions to the fields of Differential Equations, Number Theory and both Classical and Celestial Mechanics.

Lagrange was one of the creators of the calculus of variations, deriving the Euler–Lagrange equations for extrema of functionals. He also extended the method to take into account possible constraints, arriving at the method of Lagrange multipliers. Lagrange invented the method of solving differential equations known as variation of parameters, applied differential calculus to the theory of probabilities and attained notable work on the solution of equations. He proved that every natural number is a sum of four squares. He studied the three-body problem for the Earth, Sun and Moon (1764) and the movement of Jupiter's satellites (1766). In 1772, he found the special-case solutions on the secular equation of motion. Lagrangian mechanics is now called variational calculus.

In 1764 Lagrange was awarded the prize of the French Academy of Sciences for his memoir on the libration of the Moon. In 1766, the French Academy proposed a problem of the motion of the satellites of Jupiter and the prize again was awarded to Lagrange. He also won the prizes in 1772, 1774 and 1778.

Lagrange is one of the 72 prominent French scientists who were commemorated on plaques at the first stage of the Eiffel Tower when it first opened. Rue Lagrange in the 5^{th} Arrondissement in Paris is named after him. In Turin, the street where the house of his birth still stands is named via Lagrange. The lunar crater Lagrange also bears his name.

"Atheism is the opium of the mathematician. Atheism is the religion of Mathematics "

LEONHARD EULER

Leonhard Euler (15 April 1707 – 18 September 1783) was a Swiss Mathematician, Physicist, Astronomer, Logician and Engineer, who made important and influential discoveries in many branches of Mathematics, such as infinitesimal calculus, graph theory and number theory. He also introduced much of the modern mathematical terminology and notation, particularly for Mathematical Analysis. He is also known for his work in Mechanics, Fluid Dynamics, Optics, Astronomy and Music Theory.

Euler was one of the most eminent Mathematicians of the 18th century and is held to be one of the greatest in history. He is also widely considered to be the most prolific Mathematician of all time. His collected works fill 60 to 80 quarto volumes, more than anybody in the field.

Euler developed the Euler–Bernoulli beam equation, which became a cornerstone of Engineering. Aside from successfully applying his analytic tools to problems in classical mechanics, Euler also applied these techniques to celestial problems. His work in Astronomy was recognized by a number of Paris Academy Prizes over the course of his career. His accomplishments include determining with great accuracy the orbits of comets and other celestial bodies, understanding the nature of comets and calculating the parallax of the sun. His calculations also contributed to the development of accurate longitude tables.

In addition, Euler made important contributions in optics. He disagreed with Newton's corpuscular theory of light in the Optics, which was then the prevailing theory. In 1740 his papers on Optics ensured that the wave theory of light proposed by Christiaan Huygens would become the dominant mode of thought, at least until the development of the quantum theory of light.

"A mathematician is an individual who proves his beliefs with equations "

ERWIN O.KREYSZIG

Erwin O. Kreyszig (January 6, 1922 – December 12, 2008) was a German Canadian Applied Mathematician and the Professor of Mathematics at Carleton University in Ottawa, Ontario, Canada. He was a pioneer in the field of non-wave replicating linear systems. He was also a distinguished author, having written the textbook Advanced Engineering Mathematics, the leading textbook for Civil, Mechanical, Electrical, and Chemical Engineering Undergraduate Engineering Mathematics.

He was awarded the title of Distinguished Research Professor in 1991 in recognition of a research career during which he published 176 papers in refereed journals, and 37 in refereed conference proceedings.

Kreyszig was also an administrator, developed a Computer Centre at the University of Graz and at the Mathematics Institute at the University of Dusseldorf. In 1964, he took a leave of absence from Graz to initiate a doctoral program in mathematics at Texas A&M University. He authored 14 books, including Advanced Engineering Mathematics, which was published in its 10^{th} edition in 2011. He supervised 104 master's and 22 doctoral students as well as 12 postdoctoral researchers.

"The beginning is the most important part of the work"

DIFFERENTIAL EQUATIONS-BASIC DEFINITIONS

DIFFERENTIAL EQUATION

An equation containing the derivatives of one or more dependent variables, with respect to one or more independent variables is said to be a *differential equation*.

ORDER

The *order* of the differential equation is equal to the order of the highest differential coefficient that it contains.

DEGREE

The *degree* of the differential equation is the highest power of the highest order differential coefficient that the equation contains after it has been rationalized.

ORDINARY DIFFERENTIAL EQUATION

An *ordinary differential equation* is an equation which involves derivatives of one or more dependent variables with respect to a single independent variable.

Example : $\frac{d^2y}{dx^2} + \frac{dy}{dx} + 2 = 0.$

PARTIAL DIFFERENTIAL EQUATION

A *partial differential equation* is an equation which involves partial derivatives of one or more dependent variables with respect to more than one independent variables.

Example : $u_{xx} + u_{yy} = 0$

HOMOGENEOUS DIFFERENTIAL EQUATION

A first order differential equation is said to be Homogeneous if $f(x,y)dy = g(x,y)dx$, where f and g are *homogeneous functions* of the same degree of x and y.

"Maxwell's theory is Maxwell's system of equations"

LINEAR DIFFERENTIAL EQUATIONS

A linear differential equation is a differential equation that is defined by a linear polynomial in the unknown function and its derivatives. That is an equation of the form

$$a_0(x)y + a_1(x)y' + a_2(x)y'' + \ldots + a_n(x)y^{(n)} + b(x) = 0\,,$$

where $a_0(x), a_1(x), \ldots a_n(x)\ and\ b(x)$ are arbitrary differentiable functions that do not need to be linear and $y', \ldots y^{(n)}$ are the successive derivatives of an unknown function y of the variable x.

SINGULAR SOLUTION

A singular solution of an ordinary differential equation is a solution that is singular or one for which the initial value problem fails to have a unique solution at some point on the solution.

PARTICULAR INTEGRAL

A solution of a differential equation formed by assigning values to the arbitrary constants in the complete primitive is called a particular integral.

COMPLETE PRIMITIVE

The solution of an ordinary differential equation of order n always contain exactly n arbitrary constants is called the complete primitive or the general solution.

COMPLETE INTEGRAL

A solution of a partial differential equation of the first order that contains as many arbitrary constants as they are independent variables. Then the relation is called as complete integral.

SINGULAR INTEGRAL

The equation of the surfaces represented by the complete integral of the given partial differential equation is called singular integral.

BERNOULLI DIFFERENTIAL EQUATION

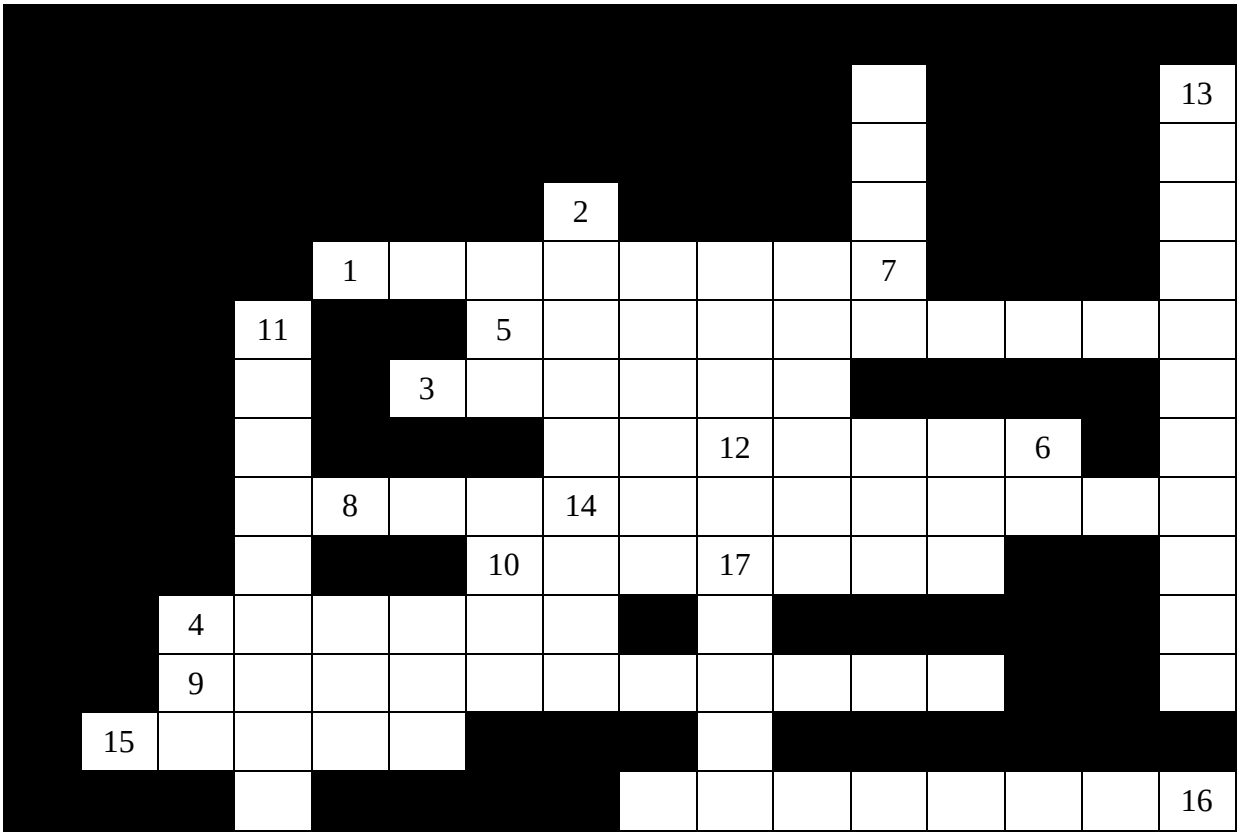
An ordinary differential equation is of the form $y' + P(x)y = Q(x)y^n$ is called a Bernoulli differential equation where n is any real number.

HOMOGENEOUS LINEAR EQUATION

An equation of the form $a_0x^n \frac{d^ny}{dx^n} + a_{10}x^{n-1} \frac{d^{n-1}y}{dx^{n-1}} + \ldots + a_ny = X$ where $a_0, a_1, \ldots, a_n$ are constants and X is either a constant or a function of X . Then it is called the homogeneous linear equation.

"Words are pretty fuzzy substitute for mathematical equations"

CROSS WORD PUZZLES



RIGHT TO LEFT:

6. An operator Lβ is said to be a self-_____differential operator.
12. The simplest ordinary differential equation can be _____ by finding anti-derivative.
16. The term ordinary is used in _____ with the term partial differential equation.

LEFT TO RIGHT:

1. The unknown function in ODE is generally represented by a _____.

3. The equation is of the form $x^2y''+xy'+(\lambda^2x^2-n^2)\,y=0$ is known as _____ differential equation.

4. In ODE the power of exponential is positive and then it is _____ exponential.

"The principle is so perfectly general that no particular application of it is possible"

5. The differential equations which have been recast as integral equation is referred to as_____ inequality.

8. The derivative of exponential function is a _____ function.

9. The _____ theorem of calculus provide a connection between differential and integration.

10.The infinite sum is called _____ sum.

15._____ method offer serves as the basis to construct more complex methods.

14. The Laplace transformation of Dirac delta method is _____.

UP TO DOWN:

2. An exact _____ order ordinary differential equation is of the form pdx+qdy=0.

11. The partial derivatives are necessary for applying the _____.

13. The second order linear ODE is said to be _____ if g(t)=0.

17. The derivative of cosine is _____ sine.

DOWN TO UP:

7. A self-adjoint differential equation with real coefficient is necessarily of _____ order.

"It is not certain that everything is uncertain."

CROSS OUT CROSS WORD PUZZLES

S	O	P	G	P	C	A	O	H	I	P	L	O	R	U	N	D
E	B	E	R	N	O	U	L	L	I	S	E	R	A	N	A	I
R	O	R	E	O	N	I	T	D	N	O	M	Y	T	I	P	A
I	C	D	A	B	S	T	A	B	I	L	I	T	Y	Q	N	G
N	G	N	T	O	T	A	T	E	R	V	N	O	Y	U	M	R
D	T	Y	E	E	A	E	G	R	H	D	Y	N	S	E	E	A
E	E	O	R	G	N	O	P	E	R	A	T	I	O	N	A	L
P	P	O	S	I	T	I	P	N	G	N	B	D	I	E	I	A
E	O	T	P	R	H	Z	S	I	E	E	A	B	A	S	Y	R
N	W	L	E	A	R	E	T	E	A	Y	T	S	E	S	I	O
D	E	D	C	D	E	R	I	V	A	T	I	V	E	S	L	I
E	R	L	I	N	E	A	R	T	R	A	N	S	F	O	R	M
N	E	N	A	A	I	L	E	D	A	U	B	L	S	N	M	R
T	A	R	L	S	U	B	S	I	D	I	A	R	Y	E	A	O
L	W	A	D	I	S	C	O	N	T	I	N	U	O	U	S	N

1. The order of differential equation is always_____.
2. The signature of function ODE y'+py=Qy^n, integer n ≠1_____.
3. The non-homogeneous term and its derivatives is _____.
4. Laplace transformation is a _____.
5. Operational calculus is also known as _____analysis.
6. Frobenius method extends _____.
7. The process of solving ODE using Laplace transformation consists of _____ steps.
8. In Laplace transform the given ODE is transformed into algebraic equation is called_____.
9. The Study of higher function not occurring in calculus is called theory of _____ function.
10. Scalar multiplication is performed by x each entry or component by _____.
11. Phase method gives information on solution_____.
12. A differential equation is any equation which contains _____.
13. Differential equations often involve derivatives with n _____ than 1.
14. The n^{th} order ODE has linearly _____solutions.
15. The solutions to an ODE satisfy existence and _____properties.

"Geometry is the science of correct reasoning on incorrect figures"

SCHOLARSHIPS FOR MATHEMATICS STUDENTS

- National Board for Higher Mathematics (NBHM): http://www.nbhm.dae.gov.in/
- Council of Scientific and Industrial Research (CSIR): http://csirhrdg.nic.in/
- Tata Institute of Fundamental Research (TIFR): http://www.tifr.res.in/
- Graduate Aptitude Test in Engineering (GATE): IIT websites
- UGC Scholarships: http://www.ugc.ac.in/
- HomiBhaba Scholarships: http://www.hbcse.tifr.res.in/
- Rajiv Gandhi Science Talent Search Fellowship: http://www.jncasr.ac.in/
- Auckland International Scholarships for Indian Students : http://www.auckland.ac.nz/
- German Academic Exchange Service (DAAD): www.daad.org/
- Erasmus Mundus Scholarship: http://ec.europa.eu
- Humboldt Research Fellowship: www.humboldt-foundation.de/
- German Research Foundation Postdoctoral fellowships (DFG): www.dfg.de
- Duke August Library: www.hab.de/forschung/stipendien/index.htm
- International Incoming Fellowships: http://ec.europa.eu/
- Fritz Thyssen Foundation Grants : www.fritz-thyssen-stiftung.de
- Fridrich Ebert foundation: www.fes.de/studienfoerderung/kontakt
- Konrad Adenauer Foundation: www.kas.de/wf/de/42.37/
- Edinburgh Global undergraduate maths scholarships: http://www.ed.ac.uk
- Felix Scholarships: http://www.soas.ac.uk
- Oxford and Cambridge society of India Scholarship: http://www.oxbridgeindia.com
- Scotland‟s Satire Scholarships (SSS): http://www.talentscotland.com/
- Eiffel France Scholarships: http://www.egide.asso.fr/
- Heinrich Boll Foundation: http://www.boell.de/
- Netherlands Fellowship Programmes : http://www.studyinholland.nl/
- Malaysia Government Scholarship: https://payloan.mohe.gov.my/MIS/
- Netherlands Fellowship Programmes: http://www.studyinholland.nl/

INTERNATIONAL PRIZES FOR MATHEMATICS

1. Abdus Salam Award recipients
2. Adams Prize recipients
3. Awards of the American Mathematical Society
4. Clay Research Award recipients
5. David Crighton Medalists
6. De Morgan Medallist
7. Ackermann–Teubner Memorial Award
8. Aisenstadt Prize
9. AlfredRenyi Prize
10. Emil Artin Junior Prize in Mathematics
11. AWM/MAA Falconer Lecturer
12. Bartolozzi Prize
13. Berwick Prize
14. George David Birkh off Prize
15. Blumenthal Award
16. Bolyai Prize
17. Caccioppoli Prize
18. Cantor medal
19. Caribou Mathematics Competition
20. Chauvenet Prize
21. COPSS Presidents Award
22. Coxeter–James Prize
23. CRM-Fields-PIMS prize
24. Rollo Davidson Prize
25. Deborah and Franklin Haimo Awards
26. Distinguished College or University Teaching of Mathematics
27. Demidov Prize
28. Franz Edelman Award for Achievement in Operations Research and the Management Sciences
29. Emile Picard Medal
30. Paul Erdos Award

31. Erdos Prize
32. Paul Erdos Prize
33. Euler Book Prize
34. Euler Medal European Mathematical Society
35. European Prize in Combinatorics
36. Fermat Prize
37. Leslie Fox Prize for Numerical Analysis
38. Frohlich Prize
39. Geometry prize
40. George Box Medal
41. Guy Medal
42. Albert Leon Whiteman Memorial Prize
43. Sir Edmund Whittaker Memorial Prize

"In order to solve this differential equation you look at it until a solution occurs to you"

SOLUTIONS TO THE PROBLEMS OF THE PREVIOUS ISSUE

CROSSWORD PUZZLES –ALGEBRA

RIGHT TO LEFT

1. CR
7. Symmetric
8. Arc
11. Pi
12. LU
17. Unit

LEFT TO RIGHT

4. Co-Ordinate
5. Real
9. Isomorphic
14. Inverse
16. Maximal

UP TO DOWN

1. Cos
2. Homomorphism
3. Field
6. Euclidean
10. Ideal

DOWN TO UP

5. Ring
13. Symmetric
15. Quotient

CROSS OUT CROSSWORD PUZZLES

1. Simplify
2. Multiply
3. Reciprocal
4. Math
5. Exponentiation
6. Fraction
7. Logarithm
8. Subtract
9. Algebra
10. Equation
11. Rational
12. Polynomial
13. Solution
14. Division
15. Sequence

CONGRATULATIONS

Congratulations to the following readers who turn out first in providing answers to the problems of the previous issue:

CROSSWORD PUZZLE

S.Janani(III-B.S.,Maths ‘A’)

V.Poornima(III-B.S.,Maths ‘B’)

CROSSOUT CROSSWORD PUZZLE

C.Nandhini(II-M.Sc.,Maths’B’)

L.Renukadevi(II-M.Sc.,Maths’B’)

DEPARTMENT ACTIVITIES

1. As a part of Bridge Course**,** the fresher's were acquainted with "**Fundamentals of Mathematics**" on 04.07.2018, to test and improve their knowledge. The aim of the entry level test is to enable them to cope with the transform from school to college level. Basic skills of students was tested through entry level test, which carries questions from the topics Trigonometry, Differentiation and Integration, Statistics, Complex Analysis and Vector Analysis.

2. Two days Workshop on **Linear Algebra** organized on 05.07.2018 & 06.07.2018. **Mr.N.Annamalai**, DST-INSPIRE FELLOW (JRF), Department of Mathematics, Bharathidasan University, Tiruchirappalli, gave the lecture on "Elementary Canonical Forms" and **Dr.K.Karuppiah**, Assistant Professor, Department of Mathematics, Government College of Engineering, Theni, delivered a lecture on "Linear Transformation".

3**.** Guest Lecture programme was organized on 13.07.2018 in which **Dr. Elango Chellappan**, Associate Professor in Mathematical Sciences, Cardamom Planters Association College, Bodinaykanur was the resource person. He address the students on **"Big Data and Fuzzy Logic".**

4. Guest Lecture programme was organized on 09.08.2018 in the topic **"Computational Fluid Dynamics"**, **Dr. S. Sivasankaran**, King Abdulaziz University, Jeddah, Saudi Arabia was the chief guest.

5. Two days Workshop was organized on 12.08.2018 & 02.09.2018 in which **Dr.K.Karuppiah**, Assistant Professor, Department of Mathematics, Government College of Engineering, Theni was the chief guest. He gave a valuable and interactive speech on **"Guidelines to Crack NBHM Exams**".

6. Intercollegiate Meet **Ayut ′ 2018** was organized on 24.08.2018 in which **Mr. V.P.S. Radhakrishnan**, Managing Director, Angel Starch & Food Pvt. Ltd., Erode, delivered the Inaugural Address, **Mrs. Janaki**, Founder & Director, Elanjie Organization, Erode gave the Special address and **Mrs. R.K. Jayanthi**, Founder & Director, Smart Kids Pregnancy Caring Center, Erode, delivered the Valedictory Address.

7. The final year UG and PG Students and Staff members of the Department visited five days **trip** to **Hyderabad** on 27.09.2018 to 01.10.2018. First day, the students departed from Erode junction at 8.00 a.m. and reached Hyderabad at 7.30 a.m, next day. The second day, the students visited to LED Chip Indus Private Limited Company and enjoyed at Imax, Lumbini park in Hyderabad. On third day, the students adored the trip at Birla Mandir, Ramoji Film city and Koti shopping in Hyderabad. The fourth day, the students exalted at Golkanda Fort, Charminar and Salar Jung Museum in Hyderabad.

8. The National Workshop was organized on 03.10.2018 in the topic **"Statistical Analysis using R"** to broaden the learner's knowledge about R software, **Dr. V.Gnanaraj**, Associate Professor, Department of Mathematics, Thiagarajar College of Engineering, Madurai, was the chief guest.

9. To render respectful accolades to the Math icon Ramanujam, **"MATH EXPO – 18"** was organized on 27.12.2018 for his 130th birthday celebration, **Dr.M.Eswaramurthi**, Professor and Head, Department of Mathematics, Vellalar College of Engineering and Technology, Erode and **Dr. K. Rathi**, Associate Professor, Department of Mathematics, Vellalar College of Engineering and Technology, Erode were the chief guest. Students displayed 49 math models and cash prize were awarded for the winners.

10. **Association Competitions** like Math Quiz, Math Sketching, e-invitation making and Math Connections were conducted by the Department of Mathematics on **28.01.2019 & 29.01.2019** to activate the interest of the students.

11. Workshop programme was organized by the department on 05.02.2019, in which **Dr. E.S. Samundeeswari**, Associate Professor in Department of Computer Science, Controller of Examinations, Vellalar College for Women (Autonomous) gave the lecture on **"Python Programming"** to the first year PG students.

12. The UG & PG students created Math models to facilitate easy learning of mathematics to the students of P.F.G.M. Nithiyuthavi Thuvakka Palli, Chinnapuliyur, on 05.02.2019, as a part of Extension Activity.

STUDENT ACTIVITIES

(i) Paper presented in Seminar / Conference / Workshop/Symposium

S. No.	Name & Class	Title of Seminar/ Conference/ Workshop/ Symposium	Organizer	Title of the Paper	Date
1	A.Sobanappriya II-M.Sc.,-B	International Conference on Mathematical Modelling and Networks (ICMMN-2018)	Nandha Arts & Science College, Erode	Mathematical Modeling in Forensics	26.07.2018
2	K.Suganthi II-M.Sc.,-B			Sudoku Game Solution Using Graph Coloring	26.07.2018
3	T.Shivadharshini II-M.Sc.,-B			Neural Network	26.07.2018
4	P.R.Sibiya II-M.Sc.,-B				
5	T.Nandhini II-M.Sc.,-B			Sudoku Game Solution Using Graph Coloring	26.07.2018
6	M.Karthi Nivetha II-M.Sc.,-A			Mathematical Modeling in Forensics	26.07.2018
7	M.Kirshnamathi II-M.Sc.,-A			Automatic Car Control System	27.07.2018
8	R.AiswaryaLakshmi II-M.Sc.,-A			Graph Theory on Sudoku	27.07.2018
9	S.Sathya II-M.Sc.,-B			Fuzzy Logic in Washing Machine	27.07.2018
10	C.Keerthana II-M.Sc.,-A				27.07.2018
11	M.Poovizhi II-M.Sc.,-B			Graph theory on Sudoku	27.07.2018
12	P.Sindhuja II-M.Sc.,-B	National Conference on Analysis and its Applications (NCAA-2018)	P.K.R Arts College for Women, Gobi	A Graph Theoritical Network Model on Human Heart	30.07.2018
13	P.Jayasuriya II-M.Sc.,-A			Traffic Flow in Graph Theory	30.07.2018
14	S.S.Lalitha II-M.Sc.,-A			Traffic Flow in Graph Theory	30.07.2018
15	S.Deepika II-M.Sc.,-A			A graph Theoretical Network Model on Human Heart	30.07.2018
16	S.Gowthami II-M.Sc.,-A			Hormone Level Changes in Thyroid Gland	30.07.2018
17	S.Dharani II-M.Sc.,-A				30.07.2018

18	D.Kalpana II-M.Sc.,-A	International Conference on Applied& Computational Mathematics (ICACM-2018)	Erode Arts and Science College (Autonomous), Erode	Computer Science Based on Graph Theory	10.08.2018
19	S.Mythili II-M.Sc.,-A			Computer Science Based on Graph Theory	10.08.2018
20	M.Nivetha M.Phil			Decision Making Problem in Intuitionistic Fuzzy Sets	10.08.2018
21	E.Leelavathi M.Phil	International Conference on Applied& Computational Mathematics (ICACM-2018)	Erode Arts and Science College (Autonomous), Erode	Numerical Solution of Fractional Differential Equations using the Generalized Operational Matrix	10.08.2018
22	A.Jayashree M.Phil			Residual Power series Method	10.08.2018
23	P.Saranya M.Phil			Novel Systems and Method for Telephone Network Planning Based on Neutroscophic Graph	10.08.2018
24	R.Ramya II-M.Sc.,-A	Intercollegiate meet Arithram'18	Sasurie Arts and Science College, Vijayamangalam	Application of Neural Network in fingerprint recognition	30.08.2018
25	M.Naveena II-M.Sc.,-B	One day workshop on Innovations in learning Mathematics SOLSTICE18	Sri Ramakrishana Mission Vidyalaya college of Arts and Science (Autonomous), Coimbatore	Shortest Path Algorithm Using Global Positioning System	07.09.2018
26	J.P.Nandhini II-M.Sc.,-B	State level Seminar on Modern Trends in Pure and Applied Mathematics	St.Joseph's College For Women, Tirupur	Temperature control using Fuzzy Logic	18.09.2018
27	P.Vanathi II-M.Sc.,-B			DNA Sequencing Similarity Analysis in Graph Theory	18.09.2018
28	K.Keerthana II-M.Sc.,-A	Fourth International Seminor-Tem'2018	KSR College of Arts and Science of Women, Thiruchengode	Automatic Finger Print Classification Using Graph Theory	10.12.2018
29	C.Anurupitha I-M.Sc.,-A				10.12.2018

30	L.Renukadevi II-M.Sc.,-B			Fuzzy Logic in Automated Mobile	10.12.2018
31	S.Punitha II-M.Sc.,-B				10.12.2018
32	P.Ponsumithra II-M.Sc.,-B			Fuzzy Rule Based Diagnostic Model for Detecting the Lung Cancer	10.12.2018
33	S.Ramya II-M.Sc.,-B				10.12.2018
34	V.Kala II-M.Sc.,-A	Ramanujam Feast-2018 Intercollegiate meet-2018 Paper Presentation	Sri Sakthi Kailash Women's college, Salem.	Fuzzy Logic in Artificial Intelligence	20.12.2018
35	V.Bhavithra II-M.Sc.,-A			Differential Equation in Synthetic Biology	20.12.2018
36	A.E.Dharanya II-M.Sc.,-A			Application of Fuzzy Logic Control	20.12.2018
37	B.SelvaKumari II-M.Sc.,-B			Graph Theory on Fingerprint Identification	20.12.2018
38	M.Pavithra II-M.Sc.,-B			Differential Equation with Tumor Growth	20.12.2018
39	R.Nandhini II-M.Sc.,-B			Application of Number Theory in Cryptography	20.12.2018
40	S.A.Hinul Marliya II-M.Sc.,-A			DNA Sequence Similarities Analysis in Graph Theory	20.12.2018
41	S.L.Divya II-M.Sc.,-A	National Conference on "Graph and Combinational Optimization"	Bharathidasan College of Arts and Science-Erode	Applying Fuzzy C Means Cluster Optimization in Detection of Leukemia	03.01.2019 & 04.01.2019
42	R.Indhumathi II-M.Sc.,-A			Fuzzy Logic in Aircraft Landing Control	03.01.2019 & 04.01.2019
43	K.Sridevi Sowmiya II-M.Sc.,-B				
44	K.Gopika II-M.Sc.,-A			Application of Graph Theory in Mobile ADHOC Network	03.01.2019 & 04.01.2019
45	R.Shalini II-M.Sc.,-B				

46	S.Pavithra II-M.Sc.,-B			Intelligent Air Conditioning System Using Fuzzy Logic	03.01.2019 & 04.01.2019
47	R.Monisha II-M.Sc.,-B				
48	R.Subhadevi II-M.Sc.,-B			Dijkstra Shortest Path Algorithm for Global Positioning System	03.01.2019 & 04.01.2019
49	M.Gomathi II-M.Sc.,-A				03.01.2019 & 04.01.2019
50	G.Dhanapriya II-M.Sc.,-B	RAMANUJAM DAY-2K's18 Paper Presentation	Bharathiar University Post Graduate Extension and Research Centre - Erode	Ramanujan Works on Mathematics	04.01.2019
51	N.Mohnapriya II-M.Sc.,-B				04.01.2019
52	R.Kokila II-M.Sc.,-A			Srinivasa Ramanujan's problems	04.01.2019
53	E.Nandhini II-M.Sc.,-B				04.01.2019
54	J.Ceema II-M.Sc.,-A	Intercollegiate meet "Infinite Learners-19" Paper Presentation	KG College of Arts and Science-Coimbatore	Application of Circular Arc-Graphs to the Traffic Light Phasing Problem	05.01.2019
55	R.SehathiyaPriya II-M.Sc.,-B			Math Application in Cryptography	05.01.2019
56	S.Srimathi II-M.Sc.,-B				05.01.2019
57	S.Dharani I-M.Sc.,-B	Intercollegiate meet EQUATE 19 Paper Presentation	Kaamadhenu Arts and Science College, Erode	Mobile Phones and Mathematics	08.02.2019
58	M.Dharani Jothi I-M.Sc.,-B				08.02.2019

(ii) Students Attended in Training Program/MTTS and others

S. No.	Name & Class	Title of Seminar/ Conference/ Workshop/Symposium	Organizer	Date
1	C.Nandhini II-M.Sc.,-B	Tenth Summer Training Programme in Mathematics	University of Madras, Chennai	16.05.2018 to 05.06.2018
2	V.C.Dharsanaa III-B.Sc.,-A	Summer School in Mathematics to the memory of Prasanta Chandra Mahalanobis	Central University of Tamil Nadu, Thiruvarur	22.07.2018 to 10.08.2018

STUDENT ACHIEVEMENTS-OFF CAMPUS

S.No	Name and Class of the student	Event/ Programme	Date of event	Organizer	Award/ Prize/ Position
1	C.Nandhini II-M.Sc.,-B	International Conference on Graph theory and its Applications Paper Presentation	27.07.2018	Bharathidasan College of Arts & Science, Ellispettai,	III
2	P.Pavithra II-M.Sc.,-B				
3	S.Sangavi II-M.Sc.,-B	RAMANUJAM DAY-2K's18 Paper Presentation	04.01.2019	Bharathiar University Post Graduate Extension and Research Centre – Erode	I
4	M.Srinandhini II-M.Sc.,-B				
5	P.Hemalatha II-M.Sc.,-A	Erode District Chess Club	21.07.2018 & 22.07.2018	Amma JJ Memorial Trophy Chess Tournament	III
6	T.Harini II-M.Sc.,-A	Intercollegiate meet Traze'18 Math Modeling	19.09.2018	Kongu Arts and Science College, Erode	II
7	D.Myvizhi Selvi II-M.Sc.,-A				
8	P.Sathiya II-M.Sc.,-B				III
9	B.Kavithra II-M.Sc.,-A				

10	G.Dhanapriya II-M.Sc.,-A	Ramanujan Feast-2018 Intercollegiate meet-2018 Modelling	20.12.2018	Sri Sakthi Kailash Women's College, Salem.	II
11	T.Harini II-M.Sc.,-A				
12	M.Sangavi II-M.Sc.,-B	Ramanujan Feast-2018 Intercollegiate meet-2018 Quiz	20.12.2018	Sri Sakthi Kailash Women's College, Salem.	II
13	S.Selvanayaki II-M.Sc.,-A				
14	K.D.Narmatha II-B.Sc.,-B				
15	V.Gobika II-B.Sc.,-A	RAMANUGAN DAY- 2K's18 Math Rangoli	04.01.2019	Bharathiar University Post Graduate Extension and Research Centre-Erode	I
16	M.Anusuya II-B.Sc.,-A				
17	S.Selvanayaki II-B.Sc.,-A	RAMANUGAN DAY- 2K's18 Quiz	04.01.2019	Bharathiar University Post Graduate Extension and Research Centre-Erode	II
18	V.Rajeshwari II-B.Sc.,-B				
19	M.Anusuya II-B.Sc.,-A	Intercollegiate meet Spectra 2k19 Math Rangoli	05.02.2019	Erode Arts and Science College(Autonomous) - Erode	I
20	V.Gobika II-B.Sc.,-A				
21	D.Myvizhiselvi II-M.Sc.,-A	Intercollegiate meet Spectra 2k19 Math Modelling	05.02.2019	Erode Arts and Science College(Autonomous) - Erode	III
22	T.Harini II-M.Sc.,-A				
23	T.Harini II-M.Sc.,-A	Intercollegiate meet EQUATE 19 Math Modelling	08.02.2019	Kaamadhenu Arts and Science College, Erode	I
24	D.Myvizhiselvi II-M.Sc.,-A				
25	K.Ponramila I-B.Sc.,-B	Intercollegiate meet EQUATE 19 Math Sketching	08.02.2019	Kaamadhenu Arts and Science College, Erode	I
26	S.Sujitha II-B.Sc.,-B				

STUDENT ACHIEVEMENTS-ON CAMPUS

S.No	Name and Class of the student	Event/ Programme	Date of event	Organizer	Award/ Prize/ Position
1	T.Kamali II-B.Sc.,-A	Math Expo-2018	27.12.2018	Vellalar College for Women (Autonomous)-Erode	III
2	Mohamooda Hasmath Nseera II-B.Sc.,-A				
3	A.Amritha I-B.Sc.,-A	Math Expo-2018	27.12.2018	Vellalar College for Women (Autonomous)-Erode	II
4	M.HasanaParveen I-B.Sc.,-A				
5	D.Myvizhiselvi II-M.Sc.,-A	Math Expo-2018	27.12.2018	Vellalar College for Women (Autonomous)-Erode	I
6	G.Dhanapriya II-M.sc.,-A				
7	R.Ramya III-B.Sc.,-B				
8	C.Anurupitha I-M.Sc.,-A				
9	D.Sowmiya I-M.Sc.,-B				
10	N.Nandhini III-B.Sc.,-B				
11	K.S.Mithra II-B.Sc.,-A	Annual Sports Day- 4*50 mts- relay	09.02.2019	Vellalar college for Women (Autonomous)-Erode	II
12	A.Kiruthika II-B.Sc.,-A	Annual Sports Day- 4*50 mts- relay	09.02.2019	Vellalar college for Women (Autonomous)-Erode	II
13	C.Anurupitha I-M.sc.,-A	Annual Sports Day- Shot Put	09.02.2019	Vellalar college for Women (Autonomous)-Erode	II

PLACEMENT DETAILS

We feel proud to convey that our students have been placed in the following reputed Companies

S.No	Name of the student	Class	Company Name
1	R. Yuvasri	III-B.Sc., Maths 'B'	Infosys IT
2	R. Mounica	III-B.Sc., Maths 'B'	Wipro
3	V. Dharshini	III-B.Sc., Maths 'A'	Wipro
4	YashminFarhana	III-B.Sc., Maths 'B'	Wipro
5	T.Ramya	III-B.Sc., Maths 'B'	Wipro
6	S.Shanmugapriya	III-B.Sc., Maths 'B'	Aee.Bee
7	J.Swathi	III-B.Sc., Maths 'B'	Aee.Bee

SNAP SHOT

BRIDGE COURSE (04.07.2018)

Bridge Course for the UG first year students on **"Fundamentals of Mathematics"** to fill the hiatus in learning.

WORKSHOP (05.07.2018 & 06.07.2018)

Workshop on **"Linear Algebra"** by Mr.N.Annamalai.

GUEST LECTURE (13.07.2018)

An energetic talk by Dr. Elango Chellappan on **"Big Data and Fuzzy Logic".**

GUEST LECTURE (09.08.2018)

Guest Lecture on **"Computational Fluid Dynamics"** by Dr. S. Sivasankaran.

WORKSHOP (12.08.2018 & 02.09.2018)

Exploration on **"Guidelines to Crack NBHM Exams"** by Dr. K. Karuppiah.

INTERCOLLEGIATE MEET (24.08.2018)

Informative speech by Mrs. Janaki in **"Intercollegiate Meet Ayuta ′2018".**

Effective speech by Mrs. R.K. Jayanthi in **"Intercollegiate Meet Ayuta ′2018".**

WORKSHOP (03.10.2018)

A tremendous one day workshop on **"Statistical Analysis using R"** by Dr. V.Gnanaraj.

MATH EXPO-2018 (27.12.2018)

Applications of Mathematics in real life has been exhibited through models at **"Math Expo 2018".**

A glimpse on the models in real life at the **"Math Expo 2018"**.

ASSOCIATION VALEDICTORY (05.02.2018)

Dr. E.S. Samundeeswari rewarded the whizz-kids of **Association competition winners.**

EXTENSION ACTIVITY (05.02.2018)

Fun way method of learning Maths to the students of P.F.G.M. Nithiyuthavi Thuvakka Palli, Chinnapuliyur, through innovative pedagogy.

STUDENT ACHIEVEMENTS

Our Principal appreciated the students for the overall championship trophy from Erode Arts and Science College(Autonomous) in Intercollegiate meet Spectra 2k19 held on 05.02.2019

Our Secretary and Principal appreciated the students for the overall championship trophy from Kaamadhenu Arts and Science College in Intercollegiate meet EQUATE 19 held on 08.02.2019