

**Department of Mathematics**  
**Departmental Academic Plan 2023-24**

S. No.	Date	Activity
1	July 2023	Bridge Class
2	September 2023	Interdisciplinary Certificate Course -I
3	November 2023	Remedial Classes I & III Sem.
4	December 2023	Student Workshop (Presentation/ Case Study/ Review)
5	December 2023	National Webinar
6	December 2023	National Mathematics Day
7	December 2023	Ganit Parv
8	January 2024	Guest Lecture
9	February 2024	Interdisciplinary Certificate Course -II
10	March 2024	Remedial Classes B.Sc. III Year and II & IV Sem.

**REPORTS 2023-2024**

**Certificate Course- Research Documentation Through LaTeX**

Certificate Course titled 'Research Documentation Through LaTeX' was held from 16 Oct to 21 Nov '2023. The introductory class was taken by Dr. Mandira Kar the coordinator. Dr. Akhilesh Pathak & Dr. Satendra Jain were the resource persons. Twenty-one postgraduate students benefitted.

**Student Workshop**

A workshop was held for students where they presented research articles and reviews on 20<sup>th</sup> Dec. '2023. 20 students participated. Their work was done under the guidance of Dr. Mandira Kar, Dr. Akhilesh Pathak, Dr. Archana Pasari & Dr. Satendra Jain. Several undergraduate and postgraduate students attended and benefitted from this workshop.

**National Webinar**

Department of Mathematics of St. Aloysius College (Autonomous) Jabalpur and Patna Women's College (Autonomous) Patna organized a National Webinar on 21<sup>st</sup> Dec '2023 on 'Recent Advances in Mathematics'. The day started with the inaugural session followed by a guest lecture by Prof. D.S. Negi, Hemvati Nandan Bahuguna Garhwal University followed with presentations by students of St. Aloysius College (Autonomous). Post lunch session began with a guest lecture by Dr. Mandira Kar Head, Department of Mathematics St. Aloysius College (Autonomous) Jabalpur on 'Interesting Mathematical Models in Real World Perspective' followed with student presentations by Patna Women's College Patna. Twenty-three students presented their work and were judged by the faculty of both institutions. The event ended with the

Valedictory function wherein the winners of the 'Student Presentation' competition were declared. 145 participants faculty, teachers & professional benefitted from this National webinar

### **National Mathematics Day**

The students & faculty of the Department of Mathematics St. Aloysius College (Autonomous) Jabalpur celebrated the National Mathematics Day with great zeal & enthusiasm. To mark the auspicious day a Documentary on the 'Life of Ramanujam' was shown on December 22<sup>nd</sup> 2023. 96 students were present for the show.

### **Ganit Parv**

Birth anniversary of Mathematics legend Srinivasa Ramanujan was celebrated as Ganit Parv by Department of Mathematics, St. Aloysius Autonomous College, Jabalpur from 16<sup>th</sup> Dec – 21<sup>st</sup> Dec. '2023 and 4<sup>th</sup> Jan. 2024. The programme was sponsored by Madhya Pradesh Council of Science and Technology Bhopal, (MPCST), National Council of Science and Technology Communication (NCSTC), Department of Science and Technology (DST), GOI New Delhi.

It aimed to create logical and analytical thinking in young minds so that they can appreciate the magic and beauty of mathematics. Various activities were organized for the students in addition to screening a documentary on Ramanujan.

December 16<sup>th</sup> 2023, the First Day of Ganit Parv started with the Mehndi competition in which 09 students participated followed by Rangoli competition with 07 participants. Topic was 'Geometrical Curves'. Judgement was done by Dr. Nisha Pandey and Dr. Poonam Pendke. For Rangoli the judges were Dr. Rishu Jain and Ms. Daspreet Kaur. Dr. Archana Pasari structured both the competitions.

On the Second Day, December 18<sup>th</sup> 2023 based on the theme 'India's Contribution to Mathematics' Speech and Poster competitions were held. Total 25 students took partook in both the competitions. The competitions were judged by Dr. Laxmi Kant Pandey and Dr. Pramod Chaitanya. Dr. Preeti Nagar organized the competitions.

Third Day, December 19<sup>th</sup> 2023 commenced at 10 am with Quiz competition on 'Concepts in Mathematics'. Postgraduate students- Ms. Nishia Vishwakarma, Ms. Priyanka Chourasia and Sakshi Tirkey conducted the event under the guidance of teacher in-charge Dr. Akhilesh Pathak. 17 students participated.

In continuation Student Power Point Presentation based on 'Advances in Mathematics' was systematized by Dr. Satendra Jain on the Fourth Day December 20<sup>th</sup> 2023 with 14 participants. Judgement was done by Dr. Mandira Kar, Dr. Akhilesh Pathak and Dr. Archana Pasari.

A Documentary on the 'Life of Ramanujam' was shown on December 22<sup>nd</sup> 2023 the Fifth Day. 96 students were present for the show.

Closing ceremony was held on January 4<sup>th</sup> 2024 steered by Dr. Mandira Kar and compere was Ms. Sanjana Yadav. Apart from students, faculty of other departments and alumni registered as participants in the technical sessions and were given a kit each. The programme included three technical sessions, chaired by Dr. Archana Pasari and rapporteur Dr. Satendra Jain, valedictory address by coordinator Dr. Mandira Kar and the prize distribution ceremony. The day started with expert talk by Dr. Gopal Meena, Associate Professor Jabalpur Engineering College Jabalpur on 'Application of Mathematics' in various fields. Dr. G.R.K. Sahu, Assistant Professor Govt. Science College Jabalpur delivered a lecture on 'Careers in Mathematics' followed by Dr. Akhilesh Pathak, Assistant Professor St. Aloysius Autonomous College Jabalpur who spoke on 'Writing a Research Paper'

Post the technical sessions 'Aloysian Mathematical Society 2022-2023' News Letter edited by the Department of Mathematics, was released by the dignitaries, faculty and student editors. Thereafter certificates and prizes were awarded to the first, second and third student of every event.

In her valedictory address Dr. Mandira Kar coordinator of the event expressed her views on the importance, skill development and research in mathematics in accordance with National Education Policy 2020. 105 students were the beneficiaries of the Ganit Parv as they were introduced to numerous aspects of the subject in an interesting way. The week-long Ganit Parv was a resounding success.

### **Guest Lecture**

The Department of Mathematics organized a Guest Lecture on 02 Feb'2024. Resource Person was Mr. Maxim James Alumni of batch and he gave an expert talk on 'How to Start a Company'. More than 125 students attended the same.

### **Certificate Course- Mathematics for Computation**

Interdisciplinary Certificate Course titled 'Mathematics for Computation' was held from 01 March to 05 April '2024. The introductory class was taken by Dr. Mandira Kar the coordinator. Dr. Archana Pasari & Dr. Preeti Nagar were the resource persons. Twenty-one students from different disciplines benefitted.

# FUNDAMENTAL LOGIC GATES

St. Aloysius colle...



Julee Shahni

- DEFINITION
- It is a digital logic that implements logical conjunction.
  - $Z = A.B$
  - It is a digital logic that implements logical disjunction.
  - $Z = A + B$

TRUTH TABLE

INPUT	OUTPUT	
A	B	Z
0	0	0
0	1	0
1	0	0
1	1	1

  

INPUT	OUTPUT	
A	B	Z
0	0	0
0	1	1
1	0	1
1	1	1



GPS



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