

Khatra Adibasi Mahavidyalaya

Govt. Aided General Degree College recognised under UGC 2(f) & 12(B)

Khatra :: Bankura :: West Bengal SSR

Data validation and Verification (DVV)

Assessment Period (2018-2023)

2.3.1

Student centric methods, such as experiential learning, participative learning and problem-solving methodologies are used for enhancing learning experiences and teachers use ICT- enabled tools including online resources for effective teaching and learning process



Khatra Adibasi Mahavidyalaya

P.O. : Khatra, Dist. Bankura, West Bengal, Pin : 722140 Phone : 8900057220 E.mail : khatraacollege@gmail.com/kacollege@rediffmail.com Website : <u>www.kamv.ac.in</u> NAAC Accredited: B+

Ref. No. :

From : Secretary | Teacher-in-Charge,



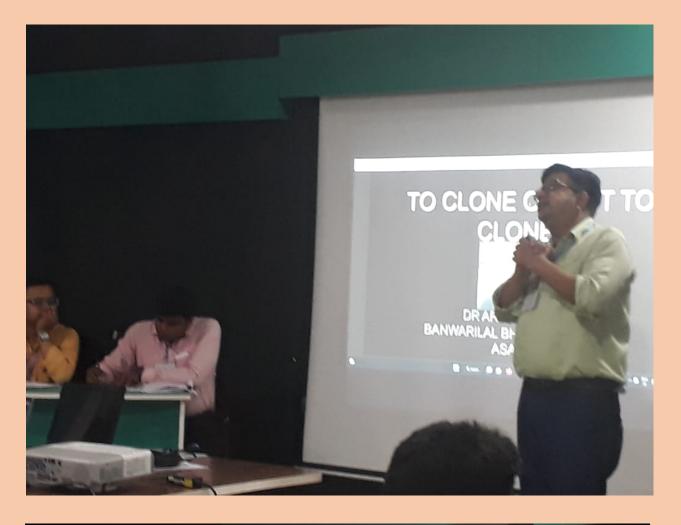
Date: ...20.7.2021

Link for webpage describing the ICT enabled tools for effective teaching-learning process.

E Materials :: Khatra Adibasi Mahavidyalaya (kamv.ac.in)

E-Materials Available in the College Website: https://kamv.ac.in/e_materials.php

*	Khatra Adíbasí Mahavídyalaya Afiliated to Bankura University NAAC Accredited B+ • Govt. Aided • Recognised under Section 25 & 128 of UGC								Fri, 10. Mar 2023 02:04:07 p.m. 🕞 😋 🗂				
		Home 👻 About Us 🕯	 Administration • 	Academic -	Admission -	Facilities -	Activities -	Student Zone -	Library •	IQAC +			
	Latest News:										Po	stponement	t of UG 1st Semester Examination to be held or
	E-Learning Delivery	E-Learning Delivery Process/Material [E-Learning/E-Content Module]											
		Select Department: Select Session:		Select Select Bengali	Select Bengali					SEAR	ксн		
•				English History Geography Sanskrit Pol. Sciem Philosophy Economics Ph. Educat Music Physics Chemistry Mathemati Commerce Education	ce / s tion								

















List of activities (2022-23)

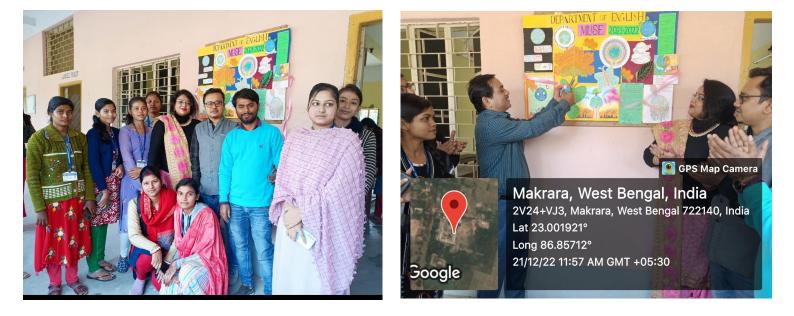
[Student centric methods, such as experiential learning, participative learning and problem-solving methodologies]

Activity	Link
Department Of History	https://kamv.ac.in/naac/dvv/1704964118 EDUCATIO
Educational Tour	NAL%20TOUR%205TH%20MARCH%202023%20
	%20DEPARTMENT%20OF%20HISTORY.pdf
International Museum Day	https://kamv.ac.in/naac/dvv/1704965298 MUSEUM%
Observation	20DAY%20180523.pdf
Two Days Workshop on	https://kamv.ac.in/naac/dvv/1704873138 History%20
Handicrafts Making	Department%20Handicrafts%20making.pdf

Wall Magazine (Bengali Department)



Wall Magazine (English Department)



Departmental Student Seminar organized by Department of Chemistry

Date: 23rd November, 2021

Departmental student seminar was organised by Chemistry Department on 23rd November, 2021. All the students from Chemistry Department have presented PowerPoint presentation on the topic from current chemistry research under the guidance of our faculty members.

No. of teachers present: 04 **No. of students present:** 10

Snapshot of the Seminar



A student seminar was organized by the department of Mathematics on 24.03.2022. The students of 4^{th} semester presented some topics, chosen by themselves from their syllabus, with power point presentation.

All the teachers of the department and students of all semesters attended the programme held in the smart class room of the college.

No. of teachers present: 04

No. of students present: 13

Some glimpses of the programme are attached:





Departmental Student Seminar organized by Department of Bengali





Drama Club- Department of English



Wall-Magazine-English Department (2021-22)





Organised by Department of English and IQAC KhatraAdibasiMahavidyalaya Bankura, West Bengal

Introduction: A Two-Day National Webinar, titled, "GENDER MATTERS: TEXTS AND CONTEXTS" was held on 22nd July 2020- 23rd July 2020 and it was organised by the department of English and IQAC, Khatra Adibasi Mahavidyalaya, Bankura, West Bengal.

Objectives: In the trying times of Covid19, the webinar was set to create a platform for indepth discussions relating gender issues and its myriad representation in literature and art. It was meant to facilitate the exchange of ideas among academicians and students, and thus developing an improved mutual understanding to address gender equality as a core concept of democratic society.

Organising committee:

The national webinar was convened by Madhumita Biswas, Assistant Professor, Department of English, KhatraAdibasiMahavidyalaya, Bankura, West Bengal, under the patronage of Mr. Kalyan Kanti Dutta, Teacher-in-Charge, KhatraAdibasiMahavidyalaya, Bankura, West Bengal. Dr. Tuhin Majumdar, Assistant Professor, Department of English acted as the organizing secretary to the event, while Ujjwal Biswas, Assistant Professor of English, and Krishna Layek, SACT -English acted as valuable members of the organising team. Dr. Md. Asif Ikbal,Assistant Professor of Mathematics helped with the technical support in seamlessly conducting the event. Erstwhile IQAC coordinator, Dr. Aloke Bhowmik and TCS, Dr. ParthasarothiHati, acted as advisors in the organising committee.







Event summary:

On Day1 (22nd JULY 2020) the webinar began by an "opening address" by webinar Convener. Madhumita Biswas, Assistant Professor, Department of English. KhatraAdibasiMahavidyalaya, Bankura, West Bengal, where she welcomed all the participants and esteemed speakers to the webinar. Her address was followed by the note" "Welcome by Mr. Kalyan Kanti Dutta, Teacher-in-Charge, KhatraAdibasiMahavidyalaya, Bankura, who formally welcomed all and virtually opened the platform for the event. Then the webinar was graced by the "Inaugural Address" of Prof. Deb Narayan Bandyopadhyay, Hon'ble Vice Chancellor, Bankura University, West Bengal. After the inaugural address the webinar started with its "first speaker", Dr. Nilanjana Deb, Associate Professor, Department of English, Jadavpur University, West Bengal. (Email: nilanjanadeb@yahoo.com). Dr Deb gave an insightful speech on "Strong hearts, strong hands: reading indigenous women's poetry from North America/ Turtle islands". After her, the "second Speaker" was Dr. Dhriti Ray Dalai, Assistant Professor, Department of English, Banaras Hindu University, Uttar Pradesh, India.(Email: dhriti.raydalai@gmail.com.) Dr. Dalai talked about ".Negotiating negative bodies" Ujjwal Biswas, Assistant Professor, Department of English, KhatraAdibasiMahavidyalaya, Bankura, introduced the "third Speaker", Dr. Sneha Kar Chaudhuri, Assistant Professor, Department of English, West Bengal State University, West Bengal(Email: sneha.kc@gmail.com). However, due to health issues of Dr. Kar Chaudhuri, her paper was presented by: Madhumita Biswas on her behalf. The topic of her paper was "Exploring Victorian gender constructs in John Fowel's French Lieutenant's Woman. After an insightful and engaging question and answer session the first day of the webinar was concluded by "Vote of Thanks" by Madhumita Biswas, Assistant Professor, Department of English.

DAY 2 (23rd JULY 2020) began by a welcome address by Dr. Tuhin Majumdar, Assistant Professor, Department of English, KhatraAdibasiMahavidyalaya. On this day the first Speaker was Dr. Nandita Banerjee Dhawan, Director, School of Women's Studies, Jadavpur University, West Bengal (Email: dhawan.nandita@gmail.com). She gave an intriguing speech on "From "Conjugality' to "Intemacies". After her the second Speakerwas Dr. Sonia Sahoo, Professor, Department of English, Jadavpur University, West Bengal.(Email: soniasahoo25@gmail.com) She provided an interesting and visually pleasing talk on " Bodies on display: Gender and Representation in Early Modern Anatomical Science". The third and final Speaker of the day was Dr. Girish D. Pawar, Assistant Professor, Department of English, Hyderabad Central University, Hyderabad, India. (Email: girishpawarhcu@uohyd.ac.in). He talked about "Marathi Theatrical Transvestites". After this an intriguing Q&A session followed. Finally, the webinar was concluded and Vote of Aloke Thanks was given bv Dr. Bhowmik. Coordinator. IOAC. KhatraAdibasiMahavidyalaya, Bankura, West Bengal. The. Valedictory session was presided over by the webinar convener, Madhumita Biswas, Assistant Professor, Department of English, KhatraAdibasiMahavidyalaya, West Bengal.

Outcomes: The webinar was a grand success with an overpouring participation and registration over 1800 people. The engaging and thought provoking speeches and Q&A



sessions opened an avenue for gender related issues in art and literature and in extension in the society. Furthermore, the webinar is available on the official youtube channel of KhatraadibasiMahavidyalaya for future students and academicians to follow and engage in the subject.

Conclusion: In conclusion it can be stated that organising a webinar acted as an integral mechanism to build interest among students of our college and academicians, in general, as it successfully brought together people from different walks of life to audit and participate in the webinar. It helped in cultivating enthusiasm among students and scholars regarding gender issues and paved the way to further conversations on gender awareness in society.



YouTube links of the webinar:

Day1: https://www.youtube.com/watch?v=A0_onu211T4

Day 2: <u>https://www.youtube.com/watch?v=31DHI-yYJIM</u>



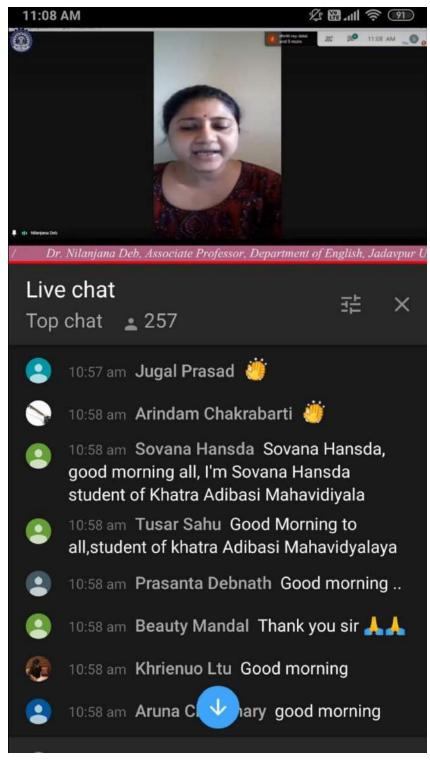


Q&A by Dr. Nandita Dhawan, Director, SWS, JU.



Speech by Dr Dhriti Ray Dalai, BHU.





Speech by Dr. Nilanjana Deb, JU.



Khatra, Bankura, PIN-722140

Department of Mathematics, Physics and Chemistry

IN COLLABORATION WITH

IQAC



IS GOING TO ORGANIZE

A STUDENT ORIENTED AND MOTIVATING ONE-DAY WEBINAR

ON

EXPLORING SCIENCE : IT'S BEAUTY AND NECESSITY

Date: 20th September 2020 & Time: 10:45 AM - 1:45 PM

KEY NOTE

Scientific minds are an interesting genre of people; they are ingenious, adventurers, analytical and pragmatic. This may not be the initial subset of people we would look to for inspiration. However, they have always tried to swim against the adverse force field, tried to turn everything into congeniality, still has been trying to tackle the mysterious curiosities followed by great intellectual challenges throughout the timeline and the worshipper of the greater State of Art. Once Albert Einstein mentioned that - "The most beautiful experience we can have is the mysterious. It is the fundamental emotion that stands at the cradle of true art and true science". Approaches from childhood to the age of consent and beyond has been based on truth seeking with beautiful and simple queries to more and more complex queries. Science included all and tried for a way out and strengthened the philosophy to understand the world around us including living and so called non-living material worlds with the inherent intelligences. Prevailing on Mathematical. Chemical. Psychological, Philosophical. Physical. Biological, Pedagogical, Social, Aesthetic, Musical & Meditational worlds; Science is moving forward for the holistic development via Technologies and highly influencing the trajectory of human life and career. The Webinar will try to focus on some of these novel and beautiful aspect of Science.



Khatra, Bankura, PIN-722140

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INVITED SPEAKERS



KEY NOTES ABOUT THE WEBINAR

Scientific minds are an interesting genre of people; they are ingenious, adventurers, analytical and pragmatic. This may not be the initial subset of people we would look to for inspiration. However, they have always tried to swim against the adverse force field, tried to turn everything into congeniality, still has been trying to tackle the mysterious curiosities followed by great intellectual challenges throughout the timeline and the worshipper of the greater State of Art. Once Albert Einstein mentioned that – "The most beautiful experience we can have is the mysterious. It is the fundamental emotion that stands at the cradle of true art and true science". Approaches from childhood to the age of consent and beyond has been based on truth seeking with beautiful and simple queries to more and more complex queries. Science included all and tried for a way out and strengthened the philosophy to understand the world around us including living and so called non-living material worlds with the inherent intelligences. Prevailing on Physical, Mathematical, Chemical, Biological, Psychological, Philosophical, Pedagogical, Social, Aesthetic, Musical & Meditational worlds; Science is moving forward for the holistic development via Technologies and highly influencing the trajectory of human life and career. The Webinar will try to focus on some of these novel and beautiful aspect of Science.

CLICK HERE

&

🔁 YouTube

TENTATIVE PROGRAM SCHEDULE

TIMMINGS:

10:45 AM - WELCOME ADDRESS BY SHRI KALYAN KANTI DUTTA, TEACHER- IN-CHARGE
10:50 AM - KEY-NOTE ADDRESS BY DR. MD. ASIF IKBAL, JOINT CONVENER
10:55 AM - SPECIAL ADDRESS BY DR. ALOKE BHOWMIK, IQAC COORDINATOR
11:00 AM - PRESENTATION BY DR. ABHIK BANERJEE

TALK: Energy and Sustainability

11:55 AM - PRESENTATION BY DR. DAMODAR PRASAD GOSWAMI

TALK: Exploring Transcendence: The Science of Meditation

12:50 AM - PRESENTATION BY DR. SUDIPTA SINHA

TALK: Mathematics: Beauty of Nature and Life

01:40 PM - VOTE OF THANKS

01:45 PM – PROGRAMME END

[The medium of the lectures and the conversations will primarily be in Bengali & English]

ORGANIZING COMMITTEE

PATRON:

Shri Kalyan Kanti Dutta TIC, Khatra Adibasi Mahavidyalaya

JOINT CONVENER:

Dr. Md. Asif Ikbal Asstt. Professor & HOD, Department of Mathematics

Dr. Arindam Chakrabarti Asstt. Professor, Department of Physics

ORGANIZING SECRETARY:

Dr. Swarup Kumar Maji Asstt. Professor & HOD, Department of Chemistry

PROGRAM COORDINATOR:

Dr. Rima Barik Asstt. Professor, Department of Mathematics

SPECIAL ASSISTANCE:

Dr. Aloke Bhowmik

Asstt. Professor & HOD, Department of History, Coordinator, IQAC

MEMBERS:

- Dr. Siddhartha Sinha Asstt. Professor & HOD, Department of Physics
- Dr. Ramakanta Mondal Asstt. Professor, Department of Chemistry
- Mr. Madhab Kr. Nandi SACT, Department of Mathematics
- Mr. Saroj Modak SACT, Department of Chemistry
- Mr. Chandidas Gop SACT, Department of Mathematics
- Mr. Soumen Rakshit SACT, Department of Chemistry
 - Mr. Bivas Dey SACT, Department of Chemistry



NB: Electronic version of certificates will be sent through emails to the participants after successful submission of feedback form. Link of Feedback Form will be provided after the end of the whole session. For any further assistance mail to: <u>webinarkam@gmail.com</u>

A Student Oriented and Motivating One-Day Seminar on

"Exploring Science: Its Beauty and Necessity"

Organized by

Dept. of Mathematics, Physics and Chemistry

in collaboration with IQAC Cell, Khatra Adibasi Mahavidyalaya, Khatra, Bankura

September 20, 2020 Time: 10:45 AM to 1:45 PM

Stream Key: zhut-sdpt-14ku-35zr-83xs

Stream Url: rtmp://a.rtmp.youtube.com/live2

Youtube Link: <u>https://youtu.be/t1_bG5cBWIA</u>

Google meet link: <u>https://meet.google.com/mik-nqza-gng</u>

Link to know about Dr. Abhik Banerjee: <u>http://www.tcgcrest.org/p_rise.html</u>

Feedback Link: <u>https://forms.gle/mABJ5GTWipScZEMGA</u>

Dear Students/Sir /Madam, Khatra Adibasi Mahavidyalaya

Please find the **Google Meet Link** given below for the Student Motivating One-day Webinar on **"EXPLORING SCIENCE : ITS BEAUTY AND NECESSITY " (20th September- 2020, Sunday)** jointly organized by the **Department of Mathematics, Physics** and **Chemistry** in collaboration with **IQAC**, Khatra Adibasi Mahavidyalaya, Bankura, West Bengal.

TIMMINGS:

10:45 AM - WELCOME ADDRESS BY SHRI KALYAN KANTI DUTTA, TEACHER- IN-CHARGE

10:50 AM – KEY-NOTE ADDRESS BY DR. MD. ASIF IKBAL, JOINT CONVENER 10:55 AM – SPECIAL ADDRESS BY DR. ALOKE BHOWMIK, IQAC COORDINATOR 11:00 AM - PRESENTATION BY DR. ABHIK BANERJEE

TALK: Energy and Sustainability

11:55 AM - PRESENTATION BY DR. DAMODAR PRASAD GOSWAMI

 TALK: Exploring Transcendence: The Science of Meditation

 12:50 AM - PRESENTATION BY DR. SUDIPTA SINHA

TALK: Mathematics: Beauty of Nature and Life

01:40 PM – VOTE OF THANKS BY DR. KAMALIKA CHAKRABORTY 01:45 PM – PROGRAMME END

The entire programme will be conducted by DR. RIMA BARIK

Google Meet Link for the Webinar

https://meet.google.com/mik-nqza-gng

Date: 20th September

Time: 10:45 AM

Invitation

Note:

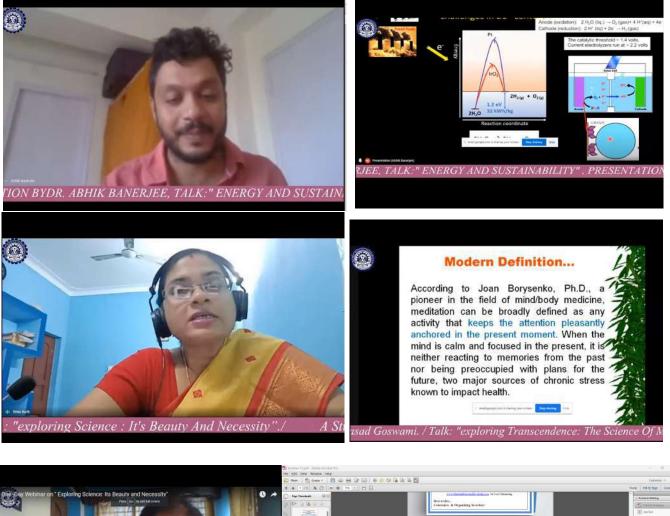
- Please keep your microphone mute during the webinar
- Please keep off your video during the webinar
- Please don't start any presentation during the webinar (except speakers)
- > You can put your questions/ comments in the Comment-Box only during the webinar

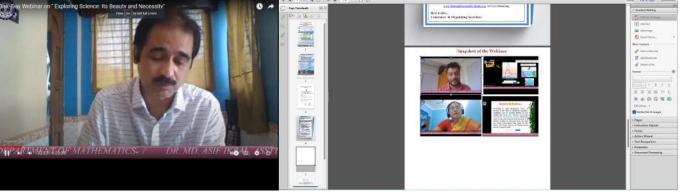
You can visit our college website for YouTube live link: www.khatraadibasimahavidyalaya.in for Live Streaming.

Best wishes,

Conveners & Organizing Secretary

Snapshot of the Webinar







Sample copy of "Students Project"



BANKURA UNIVERSITY

KHATRA ADIBASI MAHAVIDYALAYA

4" SEM EXTERNAL PRACTICAL EXAMINATION

NAME OF STUDENT :- SOUMEN DAN

SUB:-PROJECT WORK (Visit to Histrorical and

Educational Tour

Mukutmonipur

and

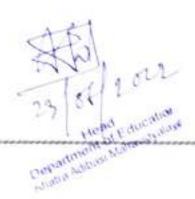
Ambikanagar)

COURSE ID:- 40210

COLLEGE ROLL :- 1035

UID NO. :- 20111202001

REG NO. :- BKU/ 11096 Of 2020-21



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KHATRA ADIBASI MAHAVIDYALAYA DEPARTMENT OF HISTORY KHATRA, BANKURA



ACADEMIC SESSION 2021-22

REPORT ON THE PROJECT

TO GET ACQUINTED THE STUDENTS HOW TO COLLECT SOURCES AND INFORMATION FOR WRITING AND RECONSTRUCTING HISTORY FROM PHOTOGRAPH





SOURCE: https://bankura.gov.in

2] = a g e

DATE: 27.05.2022 PLACE : CLASS ROOM NO -4



METHOD-BY USEING ICT- LCD PROJECTOR, LAPTOP, JIO-FI DEVICE (FOR INTERNET CONNECTION)-TO TEACH THE STUDENTS HOW TO TAKE HELP OF PHOTOGRAPHS FORWRITING HISTORY AND ALSO TO TEACH THEM HOW TO USE ICT EFFECTIVELY IN LEARNING PROCESS.

AIM AND OBJECTIVE OF THE PROJECT:

TARGET GROUP:Semester VI(Hons), Semester IV(Hons), Semester IV(Programme)-

Total ParticipantS-14

Semester VI(Hons)-08

Semester IV(Hons)-05

Semester IV(Programme)-01

RELATED COURSE:

Semester VI(Hons)- 1. HISTORY OF SOUTH-WEST BENGAL (1740-1947) (COURSE CODE-AHHST 602 C-14)

Semester IV(HONS)- UNDERSTANDING POPULAR CULTURE(COURSE CODE AHHST 405SEC- 2)

Semester IV(PROGRAMME)-

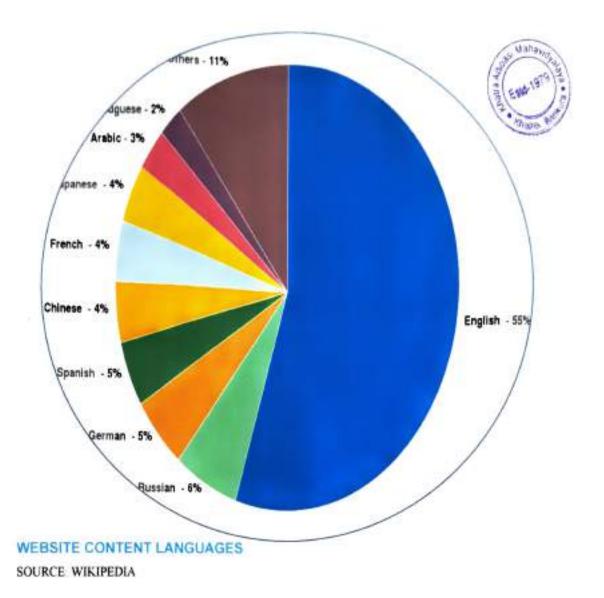
1.HISTORY OF SOUTH-WEST BENGAL (1740-1947) (COURSE CODE APHST 601 DSE-1B) 2. MUSEUM & ARCHIVES IN INDIA. (COURSE CODEAPHST 405 SEC- 2)

PROJECT CONDUCTED BY THE FOLLOWING TEACHERS:

1.DR.ALOKE BHOWMIK, ASSISTANT PROFESSOR

2.SMT. SREERUPA BHATTACHARJEE, ASSISTANT PROFESSOR

3.SHRI SHYAMSUNDAR DUTTA, SACT



AIM AND OBJECTIVE OF THE PROJECT:

ICT IN EDUCATION:



IN THIS PROJECT WE ENDEAVOURED OUR STUDENTS TO FACE THE NEW CHALLENGES OF THE NEW NORMAL WORLD. TO OVERCOME THE TRAUMA OF PANDEMIC AND PANDEMIC RELATED SOCIO -ECONOMIC HAZARDS OF THE STUDENTS, WE HAVE TRIED TO PRESENT BEFORE THE STUDENTS VARIOUS PHOTOGRAPHS TAKEN BY OUR TEACHERS IN THE LAST FIVE YEARS, INCLUDING PANDEMIC ; RELATED TO FOLK AND POPULAR CULTURE, ARCHITECTURE AND ENVIRONMENT THROUGH ICT SO THAT THE STUDENTS CAN ENJOY EDUCATION AND COME BACK TO NORMALCY AS EARLY AS POSSIBLE. AT THE SAME TIME, WE ALSO TAUGHT THE STUDENTS TO EXPLOIT SOCIAL MEDIA MUCH MORE EFFECTIVELY WITH THE HELP OF ICT.

WHEN WE DISCUSS ABOUT ICT WE ARE REFERRING TO INFORMATION AND COMMUNICATION TECHNOLOGIES. IF WE HAD TO DEFINE THE TERM, UNDOUBTLY WE WOULD DO IT AS "A SET OF TECHNIQUES AND DEVICES BASEDON NEWTECHNOLOGICALTOOLS AND THE DIFFERENT SUPPORTS AN D CHANNELS OF INFORMATION AND COMMUNICATION". TO THIS WE

COULD ADD THE PROCESS OF OBTAINING, STORING, PROCESSING AND TRANSMITTING INFORMATION DIGITALLY.

THE PROMINENT INCREASE IN THE SOCIAL USE OF ICTS AND THEIR ENORMOUS IMPACT IS AN ASPECT THAT CANNOT BE LEFT IGNORED IN THE WORLD OF EDUCATION. ICT HAS ALREADY BECOME A FUNDAMENTAL TOOL FOR NEW TEACHERS AND STUDENTS IN THE CLASSROOM. ICT PROVIDES THE FLEXIBILITY AND AVAILABILITY OF LEARNING MATERIALS TO ALL STUDENTS. WHILE ALL RESOURCES ARE AVAILABLE IN CLASSROOMS, STUDENTS CAN ALSO ACCESS THEM OUTSIDE INSTITUTIONS. THIS ESPECIALLY BENEFITS STUDENTS WHO ARE SLOW LEARNERS OR HAVE LEARNING DISABILITIES. Benefits of Technology in the Classroom

- Provides A More Engaged Learning Environment.
- Preparing Students for the Future
- . Connects Better with Students.
- Boosts Collaboration.
- Supports Learning.
- Gamified Learning.
- Virtual Field Trips.
- Create Student Websites.

THE USE OF ICT IS SO WIDESPREAD IN SOCIETY THAT CLASSROOMS SHOULD NOT BE LESS, AND THEY MUST ENSURE THAT THEY TAKE ADVANTAGE OF WHAT THEY CAN BRING TO US. HOWEVER, YOUNG PEOPLE MUST BE TAUGHT TO USE THEM CONSCIOUSLY AND SAFELY.

THE EDUCATIONAL SECTOR MUST ASSUME THE RESPONSIBILITY OF GRADUALLY IMPLEMENTING ALL THE TECHNOLOGIES THAT MAY FAVOR STUDENT LEARNING IN SOME WAY, AND ENSURE THAT THEY LEARN TO USE THEM IN A WORLD WHERE THEY ARE ALREADY A PART OF ACADEMIC LIFE AND THEIR SOCIAL ENVIRONMENT.

HOW TO USE ICT:



PREPARING STUDENTS FOR THE FUTURE

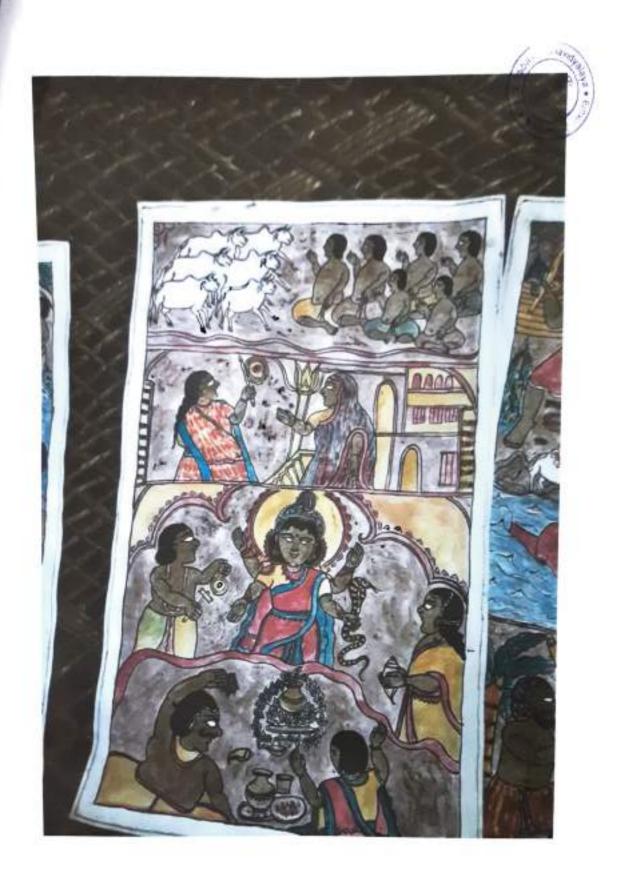
TEACHERS ARE COLLECTING DATA AND TAKING PHOTOGRAPHS OF PATACHITRA AT THE VILLAGE NOADIHI BLOCK HATIRAMPUR IN BANKURA DISTRICT ON 14.11.2019



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IDOL OF TUSU-FOLK DEITY OF SOUTH WEST BENGAL-HERE GODDESS LAKSHMI IS PERSONIFIED AS DAUGHTER OF A FAMILY AND WORSHHIPPED WHICH IS CALLED TUSU, CELEBRATION OF TUSU FESTIVAL IS HELD ON MAKAR SANKRANTLIN JANUARY MONTH., TUSU PARAB IS A FAMOUS POULAR CULTURE OF SOUTH WEST BENGAL., PHTOGRAPH IS CAPTURED BY OUR EX-STUDENT (SESSION 2019-2022)- RIYA RAKSHIT ON 9TH JANUARY 2022, PLACE: VILLAGE MOSHIARA, BLOCK -HIRBANDH DIST-BANKURA



IDOL OF TUSU - FOLK DEITY OF SOUTH WEST BENGAL

21 | F + g +



IDOL OF TUSU - FOLK DEITY OF SOUTH WEST BENGAL



DEUL-A REKHA STYLE TEMPLE AT KANKSA BLOCK IN WEST BURDWAN

PHOGRAPH IS CAPTURED BY SUJIT KUMAR GHOSH ON 24.02.2021























BOW AND ARROW-TRADITIONAL WEAPONS OF TRIBAL COMMUNITY. NOWADAYS HUNTING IS PROHIBITED, SO BOW AND ARROW ARE USED FOR ARCHARY WHICH IS VERY POPULAR AND THIS INDIGENOURS BOW AND ARROW ARE BEING USED FOR GAMING. IT IS A POPULAR FOLK GAME OF SOUTH WEST BENGAL OUR TEACHERS SMT. SREERU PA BHATTACHARJEE SOUTH WEST BENGAL OUR TEACHERS SMT. SREERU PA BHATTACHARJEE AND SHRI SHYAMSUNDAR DUTTA ARE DISPLAYING THE BOW AND ARROW.



Students Project



Project By – Tanmay Karmakar

Khatra Adibasi Mahavidyala,

Bankura University

UID NO.- 18113121010

Name of the Supervisors – Dr. Md. Asif Ikbal,

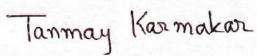
Department of Mathematics, Khatra Adibasi Mahavidyala, Bankura University &

Mr. Madhab Nandi, depertment of mathematics, Khatra Adibasi Mahavidyala.



CONTENTS

- 1. Introduction
- 2. Objective and Significance of the Study
- 3. Proposed Work
- 4. Some basic definations
- 5. Properties of Cantor
- 6. Reference



Objective and Significance of the Study:

The main aim of this project is to develop the concept of the point set topology by working on exercises and assignments.

In this project I am going to discuss some properties like___

- 1. Construction of the Cantor Ternary Set
- 2. Representation of the Cantor Ternary Set
- 3. Cardinality of the Cantor Ternary Set
- 4. Length of the Cantor Ternary Set
- 5. Closeness of the Cantor Ternary Set
- 6. The Cantor function
- 7. Fractal Dimension of Cantor Set

Etc.

The Cantor set is a very significant part of the point set

Tanmay Karmakar

topology. It is a subset of the set of real numbers which is perfect and yet nowhere dense. By construction of the cantor Ternary Set we see that a set whose length is zero but still

contains infinitely many points , even uncountably many points. This project will help to understand real analysis even point set topology more fluently.

.Introduction:

The Cantor set is a very special type of set. In 1874 **Henry Jhon Stephen Smith** discovered this set and it is introduced by German mathematician **Georg Cantor** in 1883. The set I am going to discuss about is the **Cantor Ternary Set** also known as **Cantor 1/3rd Set** although there are several more Cantor sets such as Cantor 1/5th set etc. Through construction of the set cantor and other helped lay the foundation of modern point set topology. Although Cantor himself defined the set in a general and abstract way, the most common modern construction is the Cantor Ternary set built by

Tanmay Karmakar

removing the middle third of a line segment and continuing this process infinitely many times with the remaining line segments.

The importance of the Cantor set is huge in point set topology. The Cantor set is an example of a uncountable perfect set and yet which does not contain any interval.

The cantor Set is a nowhere dense perfect set.

Tanmay Karmakar

PROPOSED WORK:

In this term paper I have introduced and define the cantor set and discuss the construction of the Cantor Ternary Set. I have also demonstrated some basic properties of the cantor set [For example cardinality, Fractal dimension of the Cantor Ternary Set]. And lastly I have discussed the measure of the cantor set and check Riemann integrability of some functions on [0,1] especially defined on the cantor set.

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:SOME BASIC DEFINATIONS:

1. Fractal Dimenssion:

Suppose S be a compact set and N(S,r) be the minimum number of balls of radius r [for sets in R balls means open intervals of length 2r] needed to cover S. Then the Fractal dimension of S is defined by

> lim <u>ln N(S,r)</u> r->0 ln(1/r)

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CONSTRUCTION OF CANTOR TERNARY SET

To construct the Cantor Ternary Set we begin with the closed interval [0,1]. From this set we shall remove a dense open set G. The remaining set $K=[0,1]\setminus G$ will become closed and nowhere dense in [0,1]. We construct G in such a way that K has no isolated points. Thus K will be a nowhere dense perfect set in [0,1].

We construct the set in many stages.-----

On the first stage let G1 be the open middle 3^{rd} of the interval [0,1] i.e G1 = (1/3,2/3) and let K1= [0,1]\G1. Thus K1=[0,1/3] U [2/3,1].

We repeat this construction on each of the two component intervals of K1. Thus let G2=(1/9,2/9)U(7/9,8/9) and let $K2=[0,1]\setminus(G1 \cup G2)$

So, K2= [0,1/9] U [2/9,1/3] U [2/3,7/9] U [8/9,1]

This completes the second stage .

We continue this process inductively getting two sequence of sets {Kn} and {Gn} with following properties:

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0			1
0	1/3	2/3	1
0	1/3	2/3	1
0	1/3	2/3	1

For each n€N,

- 1. Gn is a union of 2^{n-1} pairwise disjoint open intervals.
- 2. Kn is the union of 2^n pairwise disjoint closed intervals.
- 3. Kn= [0,1]\(G1 U G2 U G3 U...U Gn)
- 4. Each component of Gn+1 is a middle third of some component of Kn
- 5. The length of each component of Kn is $1/3^n$ Now let

$$G = \bigcup_{n=1}^{\infty} G_n$$
$$K = [0,1] \setminus G = \bigcap_{n=1}^{\infty} K_n.$$

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The set K is our Cantor set .

FRACTAL DIMENSION OF CANTOR TERNARY SET:

The Cantor Ternary Set K is contained in Kn for each n. Just as K1 consist of 2 intervals of length 1/3, K2 is consist of 2² intervals, each of length 1/3². In general each Kn in consist of 2ⁿ Intervals and each of length $\frac{1}{3^n}$. Further, we know that K contains the endpoints of all 2ⁿ intervals, and that each pair of end points lie $\frac{1}{3^n}$ apart. Therefore, the smallest number of boxes of radios $\frac{1}{3^n}$ covering K is N(K, 3⁻ⁿ)=2ⁿ. We compute the fractal dimension of the Cantor Ternary Set K as

 $Dim(K) = lim. \qquad Log 2^n / \log 3^n$

n->infinite

= log2 /log3 .

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Reference:

Websites:

 https://en.m.wikipedia.org/wiki/Cantor_set
 https://mathworld.wolfram.com/CantorSet.html
 https://blogs.scientificamerican.com/roots-ofunity/a-few-of-my-favorite-spaces-the-cantor-

set/

Books:

 Real Analysis Second Edition(2008) Volume One by Andrew M. Bruckner, Judith B. Bruckner, Brian S. Thomson.

2. Principle of Mathematical Analysis Third Edition by Walter Rudin.

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