



# DBT-Star College Scheme Jaysingpur College Jaysingpur

## Annual Progress Report

1.04.2023 to 31.03.2024

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**Dr. Sandip R. Sabale**  
Co-ordinator  
DBT-Star College Scheme

**Dr. Surat A Manjare**  
Principal  
Jaysingpur College Jaysingpur

## Department of Biotechnology

### Proforma for submission of Annual Progress Report supported under Star College Scheme

- Name of the College : **Jaysingpur College, Jaysingpur.**
- Name of Coordinator, Designation : Dr. Sandip R. Sabale, Associate Professor,  
Address, Phone nos. Department of Chemistry Jaysingpur College, Jaysingpur-  
416101, Maharashtra
- Assessment duration: 1 /04/2023 to 31/03/2024 Duration in years: 1 Year
- Details of Departments Supported

Sl No	Name of Department	Courses (B.Sc./M.Sc./PG Diploma, certificate etc.) offered	Regular Faculty members	
			Total =34	
			With Ph.D.	Without Ph.D.
1	Chemistry	B.Sc. & M.Sc.(Analytical & Organic)	07	06
2	Botany	B.Sc., Certificate course in Plant tissue culture	06	01
3	Zoology	B.Sc., Certificate course in MLT	04	02
4	Physics	B.Sc.	03	02
5	Mathematics and Stat	B.Sc.	01	02

- Number & Date of Advisory committee meeting: 05 meetings (Institutional)

- 1) 01.01.2023
- 2) 16.06.2023
- 3) 04.07.2023
- 4) 08.07.2023
- 5) 09.01.2024

- Qualitative improvements due to DBT support. Please highlight 5 salient points (within 500 words).

**1) Academic:** As proposed in the objectives with the help of equipment's and chemicals procured under DBT-Star support, the students are acquainted to handle instruments. As the number of instrument increased, the students are getting hands-on experiments. 16 computers were newly added to Mathematics department, so that students can perform practical's individually. As our students are from the rural area, they are even a first learner to the computer. DBT Star college scheme has provided a wonderful facility to our students to be a part of this scheme and will be useful to enrich their knowledge in the computer languages related to mathematics and their applications in the interdisciplinary research.

**2) Research Activities:** Students are motivated to involve in learning through research, henceforth students have allotted interdisciplinary minor research projects, participated and presented work in conference, 13 students have been participated in district/university level Avishkar Research Convention organised by Shivaji University Kolhapur and received four prizes. Our 6 faculty received minor research projects grant from Shivaji University Kolhapur. The faculty members published 16 research papers in Scopus indexed journals.

**3) Organization of Workshop, Conference and Lectures:** One national conference, 3 workshops,

5 lectures have been organized. These programs have boosted the scientific approach of students.

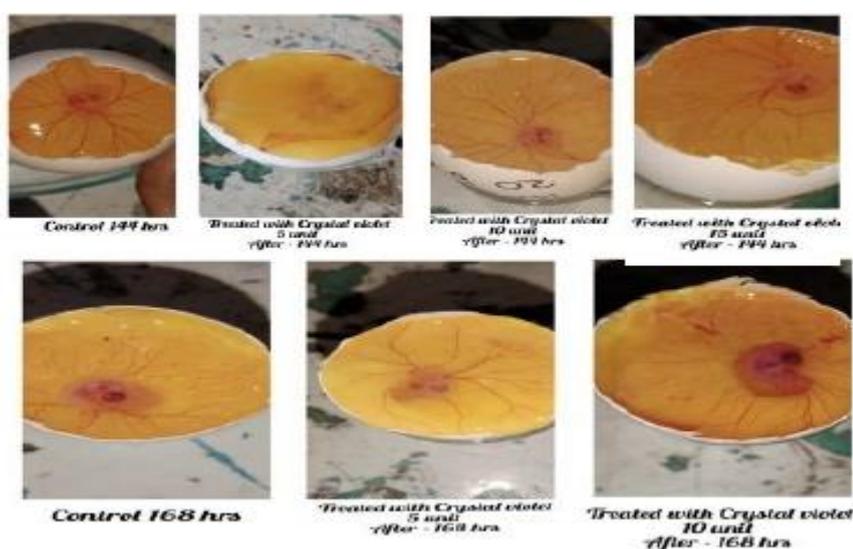
**4) Industrial visit and field visits:** Departments have organized industrial and field visits to bridge a gap between theoretical knowledge and practical applications. Students have explored to practical exposure, understanding industry practices, insight into production methods, interactions with industrial professionals, career opportunities, innovation and technology, safety and environmental practices.

**Apart from above mentioned qualitative improvements, we would like to focus in the following projects in which students were actively involved. All this work is presented in Avishkar Convention.**

### 1) Effect of crystal violet on the growth of chick embryo

**Objective:** To investigate the potential use of crystal violet dye as a tool for studying embryological development and angiogenesis patterns in chick embryo.

**Outcome:** The study revealed that the exposure crystal violet dye, whether directly or indirectly can have detrimental effects on the development of chick embryo. Even low doses of dye can lead to reduced egg weight, nutritional value, as well as disrupt normal angiogenesis and ultimately impact embryo size. These findings highlight the potential toxicity of crystal violet dye on the biological and physiological process involved in embryonic development.



### 2) Modification of Sugar Cane Bagasse as bio-adsorbent and its reuse in industrial application

**Objectives:** To prepare the bio-adsorbents from sugar cane bagasse by partial bleaching method for environmental dye remediation and its post use in composite fabrication for futuristic industrial application.

**Purpose:** The conversion of waste in to value added products is the way of agro-waste management. Herein, bagasse is modified by partial bleaching to sustain its strength and aesthetic properties. The obtained material employed for the removal of Reactive blue dye from an aqueous solution followed by its sustainable application for futuristic composite material for industrial applications.

**Conclusion:** The modified bagasse showed good adsorption property for the reactive blue dye.

The adsorbent is useful for the environmental remediation especially for dye industry effluent. The post adsorbed material is further used to form a composite instead of its disposal. The obtained composite is useful in further industrial applications, such as box making, sound absorber etc. The Bio-polymer based composite is also prepared which can be easily disposed as a manure after use.



### 3) Formulation of Millets milk powder for nutritive and good health

Objectives: Formulation of millet powder using Bajara and its nutrient contents to enumerate health advantages

**Outcome:** Healthy and nutrient full of millet milk powder was formulated and nutrient value was estimated. Planning for the commercial production of milk powder in future with enhanced quality



**Health benefits of Bajara :**

- Reduces risk of breast cancer.
- Reduces risk of childhood Asthama.
- Promotes bones health.
- Reduces cholesterol.
- Reduces risk of inflammatory diseases.
- Reduces risk of cardiovascular disease.

**Nutritional Evaluation :**

Sr.	Parameter	Unit	Value
1.	Moisture	%	03.10
2.	Total Minerals	%	00.87
3.	Crude Protein	%	05.16
4.	Crude Fat	%	01.77
5.	Crude Fiber	%	00.00
6.	Carbohydrate	%	89.10
7.	Energy	Kcal/100g	392.97

7. Any Novel aspect introduced or planning to introduce during the Scheme duration.

### **Unleashing Curiosity: A Science Promotion Workshop for Matric students:**

With support of DBT Star College Scheme, Faculty of Science organized three days' Workshop for metric students from various high schools of Shirol tehsil of Kolhapur District during 21<sup>st</sup> December 2023 to 23<sup>rd</sup> December 2023. This workshop has been an exhilarating journey, marked by countless moments of wonder, discovery, and shared excitement. Our workshop aimed not just to impart scientific knowledge, but to bring science to life, demystify its complexities, and foster a deep-seated passion for inquiry and discovery within each student. The purpose of this workshop was to promote the science among students from matric level in the rural area.

College have invited high school students to participate in the workshop in the college premises especially to the Science departments. Total, 221 students from 08 high schools have been participated in this workshop. Students were acquainted with various hands on experiments, expert lectures, visits to gardens, biodiversity center and various activities have been undertaken. The inauguration of this workshop was done by Prin. Dr. S. A. Manjare.

The heart of our workshop is a realm where hypotheses were formulated, experiments were conducted, and the hand-on of scientific exploration permeated every discussion. We embarked on a mission to unravel the mysteries of Mathematics, Physics, Biology, and Chemistry, engaging in hands-on activities, lively debates, and collaborative problem-solving to deepen our understanding of the scientific method.

8. Lessons learnt / difficulties faced/suggestions if any, in implementation of the programme and utilization of DBT grant. (Max 3 points within 300 words).

- Initially, encountered I-DGPAY and ICICI payment problem, but after familiarization with this payment method, switching to PFMS took long time to resolve the payment transfers.
- Releasing 50% grant: It's difficult to choose the equipments per department as the cost cannot be sum-up and match.
- Our academic year is June to May, so we were not aware about the time constraint as well as organization of lectures/workshops those have been planned. However, the planned programmes will be executed before term end.

9. Key performance indicators

S. no	Indicator	Pre-support (2022-23)										During /After Support (2023-24)										Remarks
1	No. of students admitted	Total =498										Total =344										College Follows Jain Minority admission rules
		M=241					F=257					M=159					F=185					
		Mino	SC	ST	OBC	G	Mino	SC	ST	OBC	G	Mino	SC	ST	OBC	G	Mino	SC	ST	OBC	G	
		38	26	01	69	107	45	43	1	70	98	34	17	0	70	38	35	20	0	90	40	
2	No. of students passing out (%) Students Admitted/passing out (pass %)	73.52 %										NA										
3	Drop-out rates	5.6%										NA										
4	No. of students opting for MSc	Botany: 00 Zoology: 06 Chemistry: 22 Physics: 03 Mathematics & Statistics: 02										NA										
5	Average marks	70 %										NA										
6	No. of hands-on experiments being conducted	Botany: 138 Zoology: 97 Chemistry: 89 Physics: 84 Mathematics & Statistics: 93										Botany: 151 Zoology: 106 Chemistry: 97 Physics: 92 Mathematics & Statistics: 99										
7	No. of new experiments introduced	NA										Botany: 13 Zoology: 08 Chemistry: 08 Physics: 06 Mathematics & Statistics: 06										
8	Publications (scopus indexed) /patents, if any.	NA										Botany: 02 Zoology: 03 Chemistry: 10 Physics: 03 Mathematics & Statistics: 01										All Scopus indexed
9	Training received by faculty	00										Botany: 02 Zoology: 02 Chemistry: 06 Physics: 04 Mathematics & Statistics: 02										FDP/ Hands-on/ workshop/Revised Syllabus training

10	Exhibitions/seminars /training courses conducted	00	National Conferences: 01 (Faculty of Science) Hands-on: Organized: 04 Workshops/Seminars: 05 Exhibition: 09 Wallpaper: 06	
11	Books/journals subscribed from grants	00	00	
12	Outreach activities (Popular lectures)		Industrial/Field visits & Study tours: 13 Research methodology: 01 Avishkar:01 Environment Awareness Rally: 01 National Day Celebrations: 02	Industrial/field visits/Popular Lectures
13	Colleges mentored to apply for DBT Star College grants	NA	Total: 02 1. Rajaram College Kolhapur 2. Dr. P. K. M. College Sangli (Both attended final taskforce presentation but not selected)	
14	Invited lectures		Botany: 01 Zoology: 01 Chemistry: 01 Physics: 01 Mathematics & Statistics: 01	Guest/Invited lecture

• Proofs (S. No. 6-14 not more than 5 pages, 1.5-line spacing 11 times roman font size) to be provided duly attested by Principal and Coordinator.

10. **Self-evaluation**

<b>Department</b>	<b>*Objective (as stated in proposal)</b>	<b>% achieved</b>	<b>Reasons for underachievement / If achieved, state in quantitative metrics</b>
1) Physics-Chemistry 2) Botany-Zoology 3) Mathematics-Statistics	The list of practical's are included in curriculum which are unable to conduct due to unavailability of instruments	85%	1) 50% amount released under which about 50% equipment's and 60% chemicals purchased 2) The academic year of the institute is 01.07.2023 to 15.05.2024
	New interdisciplinary practical's are introduced considering the undergraduate students	90%	
	Interdisciplinary projects are proposed to inculcate research culture among the undergraduates	90%	
	Newly proposed practical's and minor research projects are tuned to involve faculty of all departments to utilize their expertise.	85%	
	To enhance the holistic approach towards the interdisciplinary scientific thinking among the students, staff and school teachers from the vicinity- <ul style="list-style-type: none"> <li>• Field Visits, Seminars, Workshops, and Training programs are planned for students</li> <li>• Faculty Development Programs, Workshops, Hands-on training programs are planned for teachers</li> <li>• Various laboratory safety, waste management programs are planned for laboratory staff</li> </ul>	90%	
The instruments proposed are in sync with the planned experiments and projects	100%	Yes	

\* For quantitative analysis you may fix five objective (max) each having 2 marks and accordingly can calculate the matrix.

11. **ZBSA Status: (Mark Check Box):**

Not opened  Under process  Opened but not mapped on PFMS  Account is functional

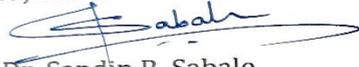
**Remarks if, any:**

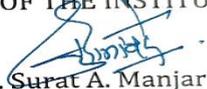
We received remaining 50% Amount in month of February 2024, and is successfully utilized for the said purpose and UC is submitted to DBT.

12. **Sanctioned Budget details:**

(Rs. in Lakhs)

Total Sanctioned Budget	Total Released Budget (Lakh)	Expenditure (Lakh)	Balance as on 31.03.2024	Remarks if any
Grants for creation of capital assets (Non- recurring)	30.00	29.99699	0.00301	All payments are done through PFMS
Grants-in-aid General (Recurring)	11.00	10.98079	0.01921	
Total	41.00	40.97778	0.02222	

PROJECT INVESTIGATOR  
  
Dr. Sandip R. Sabale  
**Coordinator**  
DBT-STAR College Scheme  
Jaysingpur College, Jaysingpur

HEAD OF THE INSTITUTION  
  
Dr. Surat A. Manjare  
**PRINCIPAL**  
Jaysingpur College, Jaysingpur

**Report: Sr. No. 6 to 14, Workshops, Seminars, Hands-on Trainings, Study/industrial visit organised by the departments under DBT-Star College Scheme**



**One day National Conference on SCIENCE AND TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT (16.12.2023)**

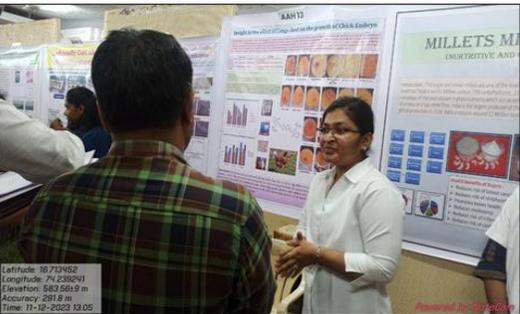
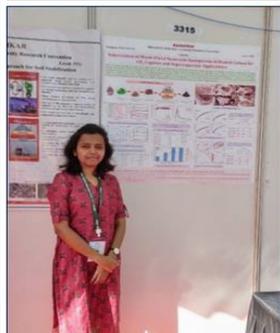


**UNLEASHING CURIACITY: SCIENCE PROMOTION WORKSHOP FOR MATRIC STUDENTS (21.12.2023 to 23.12.2023)**



# Avishkar Convention- 2023-24

## Organised by Shivaji University Kolhapur



# WORKSHOP ON UV-VISIBLE, FTIR & FLAME PHOTOMETRY

Anekan Education Society's  
**Jaysingpur College, Jaysingpur**  
 DIAMOND JUBILEE YEAR-2023-24

One day workshop on  
**"UV-Visible, FTIR and Flame photometry"**  
 Under  
**DBT-Star College Scheme**  
 Organised by  
**Department of Chemistry and Science Association**  
 Friday, 16<sup>th</sup> February 2024 @ 11:30 am onwards



**Training Resource Persons**  
**Dr. S. J. Mane-Gavade: UV-Visible Spectroscopy**  
**Dr. V. V. Jadhav: Flame Photometry**  
**Mr. M. B. Burud: FTIR Spectroscopy**

**Organizing Committee**

<b>Dr. R. S. Dhabbe</b> Dept. Coordinator	<b>Prof. Dr. B. M. Sargar</b> HOD, Dept. of Chemistry	<b>Mr. R. D. Tasgaonkar</b> Convener Science Association
<b>Dr. S. R. Sabale</b> Coordinator DBT Star College	<b>Prof. Dr. M.V. Kale</b> Vice-Principal	<b>Dr. S. A. Manjare</b> Principal
<b>Mr. K. R. Kumbhar</b>	<b>Dr. G. H. Nikam</b>	<b>Dr. A. A. Koli</b>
<b>Dr. P. P. Chikode</b>	<b>Dr. S. R. Patil</b>	<b>Dr. S. D. Umdale</b>
		<b>Dr. J. B. Patade</b>

# RESEARCH OPPORTUNITIES IN KOREAN UNIVERSITIES

Anekan Education Society's  
**Jaysingpur College, Jaysingpur**  
 DIAMOND JUBILEE YEAR-2023-24

One day Seminar on  
**"RESEARCH OPPORTUNITIES IN SOUTH KOREAN UNIVERSITIES"**  
 Under  
**DBT-Star College Scheme**  
 Tuesday, 20<sup>th</sup> February 2024 @ 11:30 am Venue: Conference Hall



**RESOURCE PERSON**

**SEJONG UNIVERSITY**

**Vijay Chavan**  
 Department of Electrical Engineering and Convergence  
 Engineering for Intelligent Drone, Sejong University, Seoul,  
 South Korea

**Organizing Committee**

<b>Dr. S. R. Sabale</b> Coordinator DBT Star College	<b>Prof. Dr. M.V. Kale</b> Vice-Principal	<b>Dr. S. A. Manjare</b> Principal
<b>Prof. Dr. B. M. Sargar</b>	<b>Dr. R. D. Mane</b>	
<b>Dr. P. P. Chikode</b>	<b>Dr. S. R. Patil</b>	<b>Dr. S. D. Umdale</b>
<b>Dr. J. B. Patade</b>	<b>Dr. R. S. Dhabbe</b>	

Photographic Glimpses of programs undertaken under DBT- Star College Scheme by Department of Zoology



Anekant Education Society's  
**JAYSINGPUR COLLEGE JAYSINGPUR**  
 Reaccredited with 'A' grade by NAAC (CGPA 3.24)  
 DBT STAR Supported College  
 Dist. Kolhapur, PIN-416101 Maharashtra  
**DIAMOND JUBILEE CELEBRATIONS**  
 2023-24

**Wildlife Week Celebration 2023-24**

Organised by  
**Department of Zoology & Green Club**

Financial Assistance  
**DBT Star College Scheme**

**Competitions**  
 Rangoli- 03/10/2023  
 Essay Writing- 03/10/2023  
 Painting- 03/10/2023  
 Poster- 05/10/2023

**Awareness Rally**  
 Date- 05/10/2023  
 Time- 9.00 am  
 Start Point- College  
 End Point- Gandhi Chowk  
 Inauguration by Prin. Dr. S. A. Manjare

**Guest Lecture**  
 Chief Guest- Mr. Raman Kulkarni  
 Honorary Wildlife Warden, Kolhapur  
 Chairperson- Prof. M. V. Kale

**Venue**  
 Conference Hall  
 Date & Time  
 05/10/2023, 11.00am

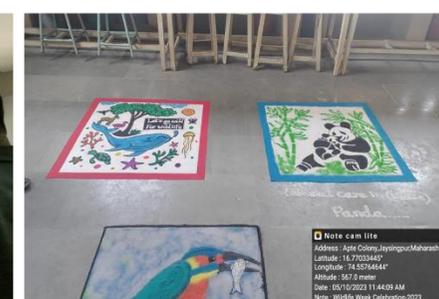
Organizing Committee

Dr. V. B. Devkar                      Dr. S. D. Umdale                      Dr. S. R. Patil  
 Convener                              Convener                              Coordinator

Miss S. T. Patel                      Miss A. B. Dhandale  
 Dr. J. J. Kulkarni                      Dr. A. S. Lokhande

Dr. S. R. Sabale                      Dr. T. G. Ghatage  
 DBT-Star College Coordinator      IQAC Coordinator

Dr. M. V. Kale                      Dr. S. A. Manjare  
 Vice-Principal                      Principal



# Department of Botany



Inauguration of Celebration of International Year of Millets (IYOM) 2023 & World Food day

Inauguration of Millet Recipes competition by Chief guest Dr. S. N. Pathan & Mr. Raju Shetti



Visit to Research Laboratory-Oasis Bio-control Lab., Shirol (B. Sc. III)

Grafting training at Datta Nursery Shirol



Visit to Tissue Culture Laboratory, Janani Tissue Culture Laboratory, Pimpalgaon (B.Sc.III)



Visit to Agharkar Research Institute (ARI), Pune Vasantada Sugar Institute (VSI), Krushik 2024: Krushi Vigyan Kendra, Baramati

Hand-on Training on Bonsai Techniques and Bonsai Exhibition

# Department of Chemistry

## Popular Lecture Series and Wallpaper Presentation Guest Lecture by Dr. R. R. Kumbhar sir (26.08.2023)

Anekaant Education Society's  
**Jaysingpur College, Jaysingpur**  
DIAMOND JUBILEE YEAR-2023-24  
Supported by  
DBT-Star College Scheme

Department of Chemistry & Chemistry Club  
Organizes  
"Popular Lecture series 2023-24"  
Tuesday, 26<sup>th</sup> August 2023 @ 11:00 am

**CHIEF GUEST AND RESOURCE PERSON**  
**Dr. R. R. Kumbhar**  
Ex-Principal, Jaysingpur College, Jaysingpur

**Popular Lecture Series**

Organizing Committee

Mr. H. B. Nambhar Convener	Dr. S. B. Sahale DBT Star Coordinator
Dr. B. S. Dhabhe	Mr. B. D. Yashwankar
Dr. B. M. Sargar HOD, Department of Chemistry	Dr. M. V. Kale Vice-Principal
	Dr. S. A. Manjare Principal



## Onsight visit to Shri Datta Shetkari Sahakari Sakhar Karkhana Ltd., and Alcohol Distillery Shirol (27.12.2023)



## Onsight visit to JSW Steel Ltd. Jindal steel (18.01.2023)



# Department of Mathematics & Statistics

## Wallpaper Presentation



## National Mathematics Day



## Poster Competition



## Quiz Competition



## Study Tour to IIT Dharwad



Aneka Education Society's  
**Jaysingpur College, Jaysingpur**  
DIAMOND JUBILEE YEAR-2023-24

Three days Workshop on Hands-On Training of "Python"

Under  
DIT Star College Scheme  
Jointly Organized by  
Department of Mathematics &  
Science Association

01/02/2024 to 03/02/2024 @ 08:00 am

RESOURCE PERSON  
**Mr. Mehul Jadhav,**  
Assistant Professor,  
Department of Mathematics,  
New College, Kolhapur

Organizing Committee  
Mr. R. D. Taogankar Convener, Science Association  
Mr. R. R. Patil Convener  
Dr. S. R. Sahale Coordinator, Jaysingpur College, Jaysingpur  
Dr. J. B. Patade Coordinator & HOD, Dept. of Mathematics  
Dr. S. A. Manjare Principal  
Dr. S. R. Sahale HOD, Dept. of Mathematics

Dr. P. P. Chikode Dr. S. R. Patil Dr. S. D. Umdale Dr. R. S. Dhabbe

Aneka Education Society's  
**Jaysingpur College, Jaysingpur**  
DIAMOND JUBILEE YEAR-2023-24

Guest Lecture on Abstract Algebra

Under  
DIT Star College Scheme  
Jointly Organized by  
Department of Mathematics &  
Science Association

Monday, 29<sup>th</sup> January 2024 @ 11:00 am

RESOURCE PERSON  
**Dr. M. T. Gophane,**  
Associate Professor,  
Department of Mathematics,  
Shivaji University, Kolhapur

Organizing Committee  
Mr. R. D. Taogankar Convener, Science Association  
Mr. R. R. Patil Convener  
Dr. S. R. Sahale DIT Star College Coordinator  
Dr. J. B. Patade HOD, Dept. of Mathematics  
Dr. S. A. Manjare Principal  
Dr. S. R. Sahale HOD, Dept. of Mathematics

Dr. P. P. Chikode Dr. S. R. Patil Dr. S. D. Umdale Dr. R. S. Dhabbe

Aneka Education Society's  
**Jaysingpur College, Jaysingpur**  
DIAMOND JUBILEE YEAR-2023-24

Guest Lecture on Career in Mathematics

Under  
DIT Star College Scheme  
Jointly Organized by  
Department of Mathematics &  
Science Association

Monday, 29<sup>th</sup> January 2024 @ 12:00 pm

RESOURCE PERSON  
**Dr. Kishor D. Kucche,**  
Associate Professor,  
Department of Mathematics,  
Shivaji University, Kolhapur

Organizing Committee  
Mr. R. D. Taogankar Convener, Science Association  
Mr. R. R. Patil Convener  
Dr. S. R. Sahale DIT Star College Coordinator  
Dr. J. B. Patade HOD, Dept. of Mathematics  
Dr. S. A. Manjare Principal  
Dr. S. R. Sahale HOD, Dept. of Mathematics

Dr. P. P. Chikode Dr. S. R. Patil Dr. S. D. Umdale Dr. R. S. Dhabbe

# Department of Physics

## Wallpaper Presentation



## Hands on Training



## Exhibition on Hiroshima & Nagasaki



## Workshop on Career Opportunities



## Study Tour to Karwar



## Abdul Kalam Jayanti Celebration



PROJECT INVESTIGATOR  
  
 Dr. Sandip R. Sabale  
 Coordinator  
 DBT-STAR College Scheme  
 Jaysingpur College, Jaysingpur

HEAD OF THE INSTITUTION  
  
 Dr. Surat A. Manjare  
 PRINCIPAL  
 Jaysingpur College, Jaysingpur