

Palus Shikshan Prasarak Mandal's
ARTS, COMMERCE AND SCIENCE COLLEGE PALUS
District: Sangli, Maharashtra, India
Affiliated to Shivaji University Kolhapur



ANNUAL PROGRESS REPORT 2021-2022
SUPPORTED UNDER
DBT STAR COLLEGE SCHEME



DEPARTMENT OF BIOTECHNOLOGY
MINISTRY OF SCIENCE AND TECHNOLOGY
CGO COMPLEX, LODI ROAD
NEW DELHI – 110 003

2021-22

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DEPARTMENT OF BIOTECHNOLOGY
PROFORMA FOR SUBMISSION OF ANNUAL PROGRESS REPORT SUPPORTED
UNDER STAR COLLEGE SCHEME

1. Name of the College: ARTS, COMMERCE AND SCIENCE COLLEGE PALUS

2. Name of Coordinator, Dr. Suresh M. Kumbar
 designation, Address, Phone No. Professor,
 Department of Zoology
 Arts, Commerce and Science College Palus
 Mobile: 9420675426
 E-mail: smkumbar@rediffmail.com

3. Assessment Duration : 01/04/2021 to 31/03/2022 Duration in Years: 01 Year

4. Details of Departments Supported:

| Sr. No. | Name of Department | Courses (B.Sc./M.Sc./PG Diploma, Certificate etc) offered | Regular Faculty Members | |
|---------|--------------------|---|---|---|
| | | | Total | |
| | | | With Ph.D. | Without Ph.D. |
| 1. | Zoology | B.Sc. M.Sc. | 1. Dr. S. S. Patil 2. Dr. S. M. Kumbar | 1. Mr. A. B. Ghadage |
| 2. | Physics | B.Sc. | 1. Dr. S. D. Pawar | 1. Mrs. S. S. Patil 2. Mr. M.V. Kamble |

5. Number and Date of Advisory committee meeting: **02**: 19/10/2020 and 28/01/2021

| Designation | Committee | Name | Signature |
|--------------------------|-----------------------|---------------------------|-----------|
| Chairman | Principal | Dr. R. S. Salunkhe | |
| Adviser, HRD, DBT | DBT Adviser | Dr. Anamika Gambhir, Sc-F | |
| | Program Officer | Dr. Garima Gupta, Sc "E" | |
| External Experts | Physics | Dr. R. T. Sapkal | |
| | Zoology | Dr. S. R. Yankanchi | |
| Members | Physics Department | Dr. S. D. Pawar (HOD) | |
| | | Mrs. S. S. Patil | |
| | | Mr. M. V. Kamble | |
| | Zoology Department | Dr. S. S. Patil (HOD) | |
| | | Mr. A. B. Ghadage | |
| Coordinator | Member Secretary | Dr. S. M. Kumbar | |
| Joint-Coordinator | | Dr. S. S. Lendave | |
| Office Staff | Office Superintendent | Mr. N. K. Shinde | |
| | Accountant | Mr. A. D. Patil | |

DBT Star College Scheme
Advisory Committee Meeting With External Experts
Minutes of the Advisory committee meeting of DBT Star College Scheme conducted on
19/10/2020


A meeting of the DBT Star College Committee members with the Advisory Committee members (External subject experts) was conducted on 19/10/2020 in the Principal Chamber, before the start of the program. The following committee members were present in the meeting,

Principal, Dr. R. S. Salunkhe welcomed to the Dr. R. S. Sapkal, Department of Physics, T.C. College, Baramati, he was appointment as Physics External Subject Expert in DBT Star College scheme Advisory committee member and also welcomed to Prof. Dr. S. R. Yankanchi, Post Graduate Department of Zoology, Shivaji University, Kolhapur: Zoology External Subject Expert

- Dr. R. S. Sapkal gave a short PPT presentation on how to go about the program highlighting the Do's & Don't.
- He emphasized the need to document all the activities.
- To judiciously utilize the funds giving examples of his experiences.
- To conduct all the extra practical's, project work as mentioned in the proposal.
- He emphasized the need to purchase all the instruments on time
- To lay more focus on interdisciplinary activities.

Both department staff members had queries related to the amount to be utilized by the different departments for activities such as study tour, field trips. Dr. R. S. Sapkal answered all the quarries.

The meeting ended with vote of thanks by the DBT Star College Scheme Co-ordinator.
Dr. Suresh M. Kumbar, Professor, Postgraduate Department of Zoology

| | | |
|--|---|---|
|  <p>Estd. 21 August 1992</p> | <p>Palus Shikshan Prasarak Mandal's ARTS, COMMERCE AND SCIENCE COLLEGE PALUS Tal: Palus, Dist: Sangli, Pin- 416 310 ☎: (02346) 226226, 228383 (Affiliated to Shivaji University, Kolhapur) Web: www.acscollegepalus.org Email: acscollegepalus@gmail.com *NAAC Accredited -B+ (2.67 CGPA)*</p> | <p>B.A. B.Com. B.Sc. B.B.A. B.C.A. B.C.S. P.G.D.C. M.A. M.Sc.</p> |
| | <p>I/c Principal: Dr. R. S. Salunkhe, M.Com. M.Phil. Ph.D. SETI Outward No. Mahavi / /DBT- Appointment File /2021-22 Mob.No.9860196990 Date : 18/09/202</p> | |

Minutes of the DBT Star College Scheme
Advisory Committee Meeting

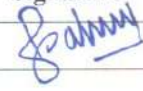
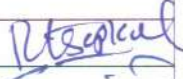
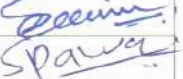
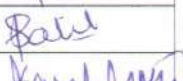
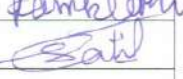

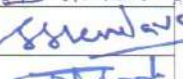


Date: 18th September 2021

Time: 11:30 am

Venue: Principal Chamber, Arts, Commerce and Science College, Palus – 416310

An Advisory Committee Meeting for the Star College Scheme of Department of Biotechnology (DBT), Government of India was held on 18th September 2021 at Arts, Commerce and Science College, Palus, Sangli to discuss various points i.e. discussion and finalization on purchase of new equipments, preparation of annual calendar, chemicals and stationary items for Physics and Zoology departments under the DBT Star College scheme.

Members Present for the meeting were as follows:

| Designation | Committee | Name | Signature |
|--------------------------|-----------------------|------------------------|---|
| Chairman | Principal | Dr. R. S. Salunkhe |  |
| Adviser, HRD, DBT | DBT Adviser | Dr. Meenakshi Munshi | |
| | Program Officer | Dr Garima Gupta, Sc.-E | |
| External Experts | Physics | Dr. R. T. Sapkal |  |
| | Zoology | Dr. S. R. Yankanchi |  |
| Members | Physics Department | Dr. S. D. Pawar (HOD) |  |
| | | Mrs. S. S. Patil |  |
| | | Mr. M. V. Kamble |  |
| | Zoology Department | Dr. S. S. Patil (HOD) |  |
| | | Mr. A. B. Ghadage | |
| Coordinator | Member Secretary | Dr. S. M. Kumbar |  |
| Joint-Coordinator | | Dr. S. S. Lendave |  |
| Office Staff | Office Superintendent | Mr. N. K. Shinde |  |
| | Accountant | Mr. A. D. Patil | |



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 NAAC Accredited -B+ (2.67 CGPA)

B.A.
 B.Com.
 B.Sc.
 B.B.A.
 B.C.A.
 B.C.S.
 P.G.D.C.A.
 M.A.
 M.Sc.

I/c Principal: Dr. R. S. Salunkhe, M.Com. M.Phil. Ph.D. SETI
 Mob.No.9860196990

Outward No. Mahavi /

/DBT- Appointment File /2021-22
 Date : 19/03/2022

DBT Star College Scheme Committee Meeting

Date: 19th March, 2022; **Time:** 11:00 am

Venue: Principal Chamber, Arts, Commerce and Science College, Palus – 416 310

Discussion of various issues regarding purchase and utilization of new equipments, chemicals, books, contingency materials, submission of student and teacher minor projects etc of Physics and Zoology departments under the Star College Scheme of Department of Biotechnology (DBT), Government of India is scheduled on Saturday, 19th March, 2022 at the Principal Chamber in Arts, Commerce and Science College, Palus, Sangli. Members for the meeting are as follows;

| Designation | Committee | Name | Signature |
|--------------------------|-----------------------|-----------------------|--------------------|
| Chairman | Principal | Dr. R. S. Salunkhe | <i>[Signature]</i> |
| Sanstha Member | Secretary | Mr. Dhondiram Shinde | <i>[Signature]</i> |
| External Experts | Physics | Dr. R. T. Sapkal | <i>[Signature]</i> |
| | Zoology | Dr. S. R. Yankanchi | <i>[Signature]</i> |
| Members | Physics Department | Dr. S. D. Pawar (HOD) | <i>[Signature]</i> |
| | | Mrs. S. S. Patil | <i>[Signature]</i> |
| | | Mr. M. V. Kamble | <i>[Signature]</i> |
| | Zoology Department | Dr. S. S. Patil (HOD) | <i>[Signature]</i> |
| | | Mr. A. B. Ghadage | <i>[Signature]</i> |
| Coordinator | Member Secretary | Dr. S. M. Kumbar | <i>[Signature]</i> |
| Joint-Coordinator | | Dr. S. S. Lendave | <i>[Signature]</i> |
| Office Staff | Office Superintendent | Mr. N. K. Shinde | <i>[Signature]</i> |
| | Accountant | Mr. A. D. Patil | <i>[Signature]</i> |
| | Lab. Assistant | Mrs. Pooja Desai | <i>[Signature]</i> |

6. Qualitative improvements due to DBT support. Department wise: Zoology

The Star College Scheme of Department of Biotechnology, New Delhi has enabled the departments to procure new equipment and improved the infrastructure facilities in multiple numbers and simultaneously performances, as a result of which the students are able to handle the instruments individually, and subsequently it has increased their confidence level. The DBT star college scheme has enabled the departments to purchase books and enrich the departmental library to which the students have an easy access. It was possible to organize Science day, National voter's day celebration and workshop on Handling of glassware and chemicals in laboratory in an interdisciplinary manner in our college. With the help of DBT funds which has enabled undergraduate students of our college to participate in the various events and present their research work in the form of oral and poster presentations and also provided an opportunity to expose their hidden talents. The Star College Scheme has enabled the departments to upgrade the existing teaching resources which have in turn improved the 'hands on' experimental exposure of the students, in-turn reflecting the enhanced quality of learning and teaching of the students and teachers respectively. Due to star college scheme we were able to create health awareness, computer literacy and information technology and its applications among the students in the college campus. Excursions and field visits conducted to various agriculture related farms and research institutes under this scheme has enabled deserving students from economically backward sections also to attend such field trips and get academic and industrial exposure. Thanks to DBT.

Students Minor Research Projects of Zoology Department

| Sr. No. | Title of Project | Impact | Name of students | Remarks |
|---------|---|--|---|-----------------------------------|
| 1. | Study of Mosquito and Mosquito Born Diseases | Promoting Rural Health Conditions | Ms. Agale Shreya Anandrao Ms. Dupate Prajakta Ashok | Project work is in under progress |
| 2. | Diversity of Freshwater fishes of Krishna River | Development of Identification skill in students | Ms. Kore Gayatri Manohar Ms. Patil Supriya Uttam Ms. Murudkar Vaishnavi V | |
| 3. | Study of Histological Organs of Freshwater Fish <i>Labeo rohita</i> | Perfection in micro technique and identification skill in students | Mr. Patil Aditya Anil Mr. Pawar Sourabh Tukaram | |
| 4. | Bird Diversity In Palus Tashil | Development of photographic and Identification skill in students | Mr. Jamadade Aniket Anil Mr. Patil Sourabh Suhas | |
| 5. | Study of Hard Epidermal | | Ms. Pawar sneha Uttam | |

| | | | |
|----|---|--|--|
| | derivatives of Vertebrates | | Ms. Mane Dhanashri Ramesh |
| 6. | Types of Poisonous and Non-poisonous snakes | Able to distinguish Poisonous and non-poisonous snakes in Rural area and bring the awareness in people | Ms. Bankar Ashwini S. Ms. Nalawade Nandita V. Ms. Mohite manorama S. |
| 7. | Preparation of Vermi-composting | Promoting to Rural Agriculture with bio-compositing skill in students | Ms. Chavan payal Anil Ms. Ghule Arti Kishor |
| 8. | Flea and Flea Born Diseases | Promoting Rural Health Conditions | Ms. Ingawale Vaishnavi Vikas Ms. Gaikwad Vishranti Shashikant Ms. Lohar Dipali Vilas |

Students Minor Research Projects of Department of Physics:

| Sr. No. | Name of the project | Name of the students | No. of students | Impact | Justification |
|---------|---|--|-----------------|--|--|
| 1. | Preparation of silver nanoparticles by using Allium Sativum leaves | 1. Mrs Swati S. Patil. 2. Mr.Koushik Patil 3. Miss.Tejswini Kate 4. Miss.Priyanka Awati 5. Miss.Sonali sawant | 4 | Students can synthesize silver nanoparticles. They can analyse uv visible spectrum | There are different methods for production of silver nanoparticles. Silver nanoparticles have number of extraordinary properties than bulk. Production of silver nanoparticles by chemical method involve use of toxic chemicals. Biosynthesis of nanoparticles is clean nontoxic and eco-friendly method. |
| 2. | To study antimicrobial activity of silver nanoparticles synthesized from allium sativum leaves | 1) Mrs. Swati S. Patil 2. Mr. Koushik Patil 3. Miss.Tejswini Kate 4. Miss.Priyanka Awati 5. Miss.Sonali savant | 4 | Students can grow bacteria and they can study antibacterial activity | Due to chemical method there is adverse and harmful effect on it's application. Allium sativum is medicinal plant. So it shows better result toward antimicrobial activity. |
| 3. | Effect of physicochemical parameters on the quality of drinking water in villages of Burli, Kundal, Amnapur and palus. Dist Sangli (MS) | 1) M. V kamble 2) Amruta sanjay chavan. 3) Deepali S. Shivade. 4) Supriya R. Mali. 5) Aaishwarya B. Kakekar | 4 | Digestive system and health of people in Burli, Kundal, Amnapur and palus. | It is always necessary to test frequently drinking Water Quality. Water quality can be improved by suggesting appropriate measures, If any adverse component is found in water analysis. |
| 4. | Calculation of Enthalpy and specific heat capacity of Rare earth doped metal | 1) M. V kamble 2) Amruta sanjay chavan. 3) Deepali shankar shivade. 4) Supriya Ramchandra Mali. | 4 | Will learn to calculate Enthalpy and Specific heat capacity of | After learning to calculate Enthalpy and specific heat capacity Students will be familiar and will adopt research in coming future. Similarly Enthalpy and specific heat capacity can be calculated for |

| | | | | | |
|----|--|---|---|--|----------------------------|
| | oxide. | 5) Aaishwarya Bhujang Kakekar | | materials. | other materials. |
| 5. | Effect of negative air ion generator on growth of wheat plant | 1) Dr S.D Pawar. 2) Nilesh shinde 3) Mamata singh 4) Satvashila Nalwade | 3 | This is Innovative way to increase nutrition of plant. | On economy of farmers |
| 6. | Air ion and pollution Index near to road at semi urban station palus | 1) Dr S. D Pawar. 2) Nilesh shinde 3) Mamata singh 4) Satvashila Nalwade | 3 | This is Innovative way to study air pollution | Pollution can be monitored |
| | | | | | |

9. Key Performance Indicators

| Sr. No. | Indicator | Pre-support 2019-20 | | | | | | | | During/ After Support 2021-22 | | | | | | | | Remarks | |
|------------------------------|---|------------------------------|----------------------------------|-----|---|-------------|----|-----|----|-------------------------------|---|-----|---|-------------|----|-----|----|---------|--|
| Department of Zoology | | | | | | | | | | | | | | | | | | | |
| 1. | Number of students admitted | Total = 38 | | | | | | | | Total = 22 | | | | | | | | | |
| | | Male = 08 | | | | Female = 30 | | | | Male = 00 | | | | Female = 22 | | | | | |
| | | SC | ST | OBC | G | SC | ST | OBC | G | SC | ST | OBC | G | SC | ST | OBC | G | | |
| | | 1 | 0 | 2 | 5 | 6 | 1 | 2 | 21 | 0 | 0 | 1 | 5 | 3 | 1 | 0 | 12 | | |
| | | Department of Physics | | | | | | | | | | | | | | | | | |
| | | Total = 18 | | | | | | | | Total = 10 | | | | | | | | | |
| | | Male = 1 | | | | Female = 17 | | | | Male = 4 | | | | Female = 6 | | | | | |
| | | SC | ST | OBC | G | SC | ST | OBC | G | SC | ST | OBC | G | SC | ST | OBC | G | | |
| | | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 14 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 5 | | |
| 2. | No. of students passing out (%) students Admitted/ passing out (pass %) | Zoology | Batch 2019-2020 100% | | | | | | | | Batch 2020-2021 Result yet to be announce | | | | | | | | |
| | | Physics | Batch 2019-2020 90% | | | | | | | | Batch 2021-2022 Result yet to be announce | | | | | | | | |
| 3. | Drop-out rates | Zoology | 00 | | | | | | | | -- | | | | | | | | |
| | | Physics | 00 | | | | | | | | -- | | | | | | | | |
| 4. | No. of students opting for M.Sc. | Zoology | 03 | | | | | | | | 07 | | | | | | | | |
| | | Physics | 06 | | | | | | | | 07 | | | | | | | | |
| 5. | Average marks | Zoology | 90% | | | | | | | | -- | | | | | | | | |
| | | Physics | 87% | | | | | | | | -- | | | | | | | | |
| 6. | No. of Hands-on-Experiments being conducted | Zoology | 1. Measurement of Blood Pressure | | | | | | | | 1) Mr. R. M. Patil: Laboratory Glassware's and Chemicals: Handling and Precautions 2) Prof. Dr. S. S. Patil: Fish Aquarium: Construction and Maintenance 3) Dr. S. S. Patil: Microtomy 4) Dr. S. M. Kumbar: Blotting Techniques 5) Mr. A. B. Ghadage: Estimation of Water Quality | | | | | | | | |
| | | Physics | 02 | | | | | | | | 1) Water analyzer 2) Use of new equipments 3) Electric wiring 4) Repairing of Electric Domestic appliances | | | | | | | | |
| 7. | No. of New Experiments introduced | Zoology | Nil | | | | | | | | 1) Gel Electrophoresis 2) Thin Layer Chromatography 3) Estimation of BOD | | | | | | | | |

| | | | | | |
|-----|--|---------|--|---|--|
| | | | | 4) DNA isolation 5) Identification of Insect Pests 6) Chick Embryo Mounting 7) Estimation of Zooplanktons | |
| | | Physics | 00 | B. Sc. Part II; Group - I. 1) Newton's law of cooling. 2) Temperature coefficient of platinum resistance thermometer Group - II. 3. Specific heat of Graphite. 4) Thermal conductivity of glass in the form of heat Group - III. 5) To study Lissajous figures by using CRO. 6) Melde's Experiment Group - IV. 7) Thickness of thin Film Interference 8) Newton's ring method B. Sc. Part III 9) Y by Koenig's method. 10) Diffraction at cylindrical obstacle. 11) Diameter of Lyco-podium powder. 12) e/m of electron by Thomson's method. 13) I-V characteristics of Solar cell. 14) Band gap energy of semiconductor using p-n junction diode. | |
| 8. | Publications (Scopus indexed)/ Patents, if any | Zoology | 02 | 02 | |
| | | Physics | 00 | 00 | |
| 9. | Training received by faculty | Zoology | 02 | 1) Three Day International Conference Pune 2) Two Days International Conference Ramanandnagar 3) One Day National Conference Palus 4) Refresher course Mr. A. B. Ghadage | |
| | | Physics | 03 | 03 | |
| 10. | Exhibitions/seminars /training courses conducted | Zoology | 1) Avishkar Research Project workshop 2) Wall paper presentations 3) Students Seminar Series | 1) Book Exhibition 2) B.Sc.- III student Seminar 3) Poster Exhibition for B. Sc. Students 4) Avishkar Research Competition 5) ZOOFEEST -2022 | |
| | | Physics | 01 | 1) Poster presentation 2) Participated in training prog. Organized by Perfect Electronics 3) Science Exhibition for High school students | |
| 11. | Books/Journals subscribed from grants | Zoology | 10 | Nil | |
| | | Physics | 06 | 45 | |
| 12. | Outreach activities (Popular Lectures) | Zoology | 1) Intellectual Property Rights 2) Flood relief Activities NDRF Team maintenance 3) COVID -19 Awareness campaign | 1) Dr. A. D. Jadhav: Past, Present and Future in Apiculture 2) Three Days Workshop 3) One day National Conference RARDB-2022 | |

| | | | | | |
|-----|---|---------|---|--|--|
| | | | | 4) Popular Lecture on 'Gram-Vavasta' by Shri. Bhaskarrao Pere-Patil 5) Celebration of 'Shivjayanti' 6) Apiculture Visit, Mahabaleshwar | |
| | | Physics | 00 | 1) International Women day program, activities like quiz Online Covid-19 survey 2) Organized three study tours 3) Organized field visit in Perfect electronics | |
| 13. | College mentored to apply for DBT Star College grants | Zoology | Self motivation after seeing on DBT website | KNP College, Walwa, Dist. Sangli | |
| | | Physics | - | Matushri Bayabai Shripatrao Kadam Kanya Mavadyala Kadegaon | |
| 14. | Invited Lectures | Zoology | Mr. Sandip S. Patil, Dept. of Computer Science, ACS College Palus | 1) Prof. Dr. Narendra Kulkarni 2) Mr. A. B. Mane 3) Prin. Dr. V. Y. Kadam 4) Dr. A. D. Jadhav 5) Mr. A. M. Ghadage 6) Sci. Dr. S. M. Ghaskadabi 7) Prof. Dr. N. P. Gramapurohit 8) Prof. Dr. C. B. Ganesh 9) Prof. Dr. S. R. Yankanchi 10) Prof. Dr. M. P. Bhilave 11) Prof. Dr. Nitin A. Kamble | |
| | | Physics | 01 | 1) Dr. R. S. Sapkal, T.C. College, Baramati, Satara | |

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

- Students were encouraged to undertake compulsory carrier orientation courses like sericulture, maintenance of electrical equipments and home appliances, yoga and meditation, tally and maintenance of hardware and software in computer and English speaking courses.
- Introduction of new experiments and practical's had aided the students to expand their existing knowledge.
- Conduct of Awareness and Sensitization Programs to the society in the context of health (COVID-19 Pandemic awareness and blood group identification, swatch Bharat scheme).
- Faculty members enriched their knowledge by participation in orientation course, refresher courses, faculty development programmes and participation in workshops /conferences/seminars and also DBT Star College enabled student initiatives such as paper presentations or poster presentation in conferences / Seminars and student exchange programmes.
- Compulsory field visits and study tour for third year students to inculcate competitive spirit among students. These activities are an essential part of the study of life sciences. To study animals in the natural environment where all the animals live in their natural habitat is one of the most interesting and useful experience for a student of zoology.

Department of Physics:

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

We are planning to provide water testing facility to residential areas of nearby villages around our college as well as rural areas nearby college.

To recommend measures to be taken before drinking water.

Biosynthesis of nano particles from different plant extract and to study its applications

To do preliminary study of effect of negative air ion generator on different agriculture plants.

To synthesize different nano materials and its applications

8. Lessons learnt/ difficulties faced / suggestions if any, in implementation of the programme and utilization of DBT grant.

We have made this year mandatory for individual or group projects to final year students in both physics and zoology departments. Regular encouragement to students for participate and present research papers in Conferences /Seminars / Symposia, etc. and to develop good rapport among eminent subject experts in physics and zoology departments. Promoting to our graduate students for publish their project work data in local news papers, research papers in renowned Journals. Improvement of infra structure facilities in the both participatory departments. Other department faculties and students for optimal use of newly purchased equipment's and knowledge support. Promotion to research thirst and learning skills through ICT tools for both departments. Popularizing and elevating the image of the college through star college scheme activity.

Department of Physics:

Difficulties Faced: Unable to purchase computers, printers, Xerox machine and smart board from recurring grant. Please allow us to purchase in recurring grant. Due to Covid 19 Pandemic we were unable to organize outreach programs. Program planned were Sky observation program, organizing of guest lecture, training program, hands-on training to students. To complete these activities we need extra time. When the wave of pandemic stops actual work will start.

Suggestions: Computers, printers, Xerox machine and smart board cannot be purchased through recurring. Permission must be given to purchase above items through recurring grant.

10) Self Evaluation: Department of Zoology

| Dept. | *Objective (as stated in proposal) | % achieved | Reasons for underachievement / If achieved, state in quantitative metrics |
|-------|---|------------|---|
| | To provide high quality education to rural area and economically backward class students in the various aspects of life sciences with diverse interests and carrier aspirations and also to acquire appropriate scientific, intellectual, technical and transferable skills to promote self directed and lifelong learning. | 100% 2 | Department of Zoology have conducted maximum activities on online mode and offline mode such hand-on-Training, outreach programs, Industrial visit, Study tour, Exhibition, Poster presentation and Avishkar research Competition |
| | Field Visits and study Tour: visited to apiculture and seashore to learn the natural habitat of animals, it is important to make the student a better understanding of the subject by allowing them to see and observe the natural environment. These activities are an essential part of the study of science and is one of the most interesting and useful experience for a student of Zoology. | 100% 2 | |
| | Promoting Research activities: inculcating the research attributes among the faculty and students in design and execution of innovative idea at UG and PG level and which will impart the innovative thinking in the field of biological sciences. | 100% 2 | |
| | Compulsory research project for students: Inculcating the research attributes among the students in design and execution of innovative idea at under graduate and post graduate level and which will impart the innovative thinking in the field of biological sciences. | 100% 2 | |
| | Computer Literacy Programme: To provide a high quality education in the various aspects of bioinformatics and computer sciences with diverse interests and carrier aspirations and also to acquire appropriate intellectual, scientific, technical and transferable skills to promote self directed and lifelong learning. | 100% 2 | |

10. Self Evaluation

| Department | Objectives | % Achieved | Reasons for under achievement/If achieved state the qualitative metrics |
|------------|---|------------|--|
| Physics | 1.To enhance the interest of students in basic sciences | 50 | Due to Covid 19 students cannot attend practicals . |
| | 2.To develop experimental skills in rural college students | 50 | Students did project but cannot complete all practical's due to pandemic |
| | 3.To make students aware of recent trends in science and technology and Physics | 100% | All students participated in computer skill awareness programme. Students participated in Institute visit and Laboratory visit |
| | 4.To increase the ability of students to relate practical and theoretical and applied knowledge | 100% | Students completed about 6 projects .Publish research papers, Some are in progress. |
| | 5.To make students capable of need of society through education and practical knowledge | 100% | Students are doing project related to water purity in nearby villages. Also the study effect of air ions on growth of plants which will useful for farmers |

Total Marks 8

FIVE MINOR PROJECTS AND THEIR IMPACT OUTCOME

5. Minor projects and their impact or similar activities and their outcome: Zoology

1. BODY SIZE AND AGE OF LESSER BANDICOOT RAT

***BANDICOOT BENGALENSIS* BY USING SKELETOCHRONOLOGY**

Abstract:

Body size and age of lesser bandicoot rat was estimated by using skeletochronological method. The lesser bandicoot rat or Indian mole-rat (*Bandicoota bengalensis*) is a giant rat of Southern Asia. These are considered a pest in the cereal crops and gardens of India and Sri Lanka. Different body sized lesser bandicoot (n = 27) were collected from the Palus colony, Ambe Ghar colony, road killed, agriculture fields of Palus Taluk in 2020-2021. They brought to the laboratory where snout-vent-length (SVL) of each individual was recorded; the 4th toe of both the hind limbs was clipped, fixed in 10% formalin, demineralized in 5% nitric acid and processed for histology. In all 27 lesser bandicoot Rats used for phalangeal skeletochronology, the LAGs were clear and distinct. Among these, three (11.11%) individuals with (SVL: 15.60 ± 0.266 cm), showed no LAGs in their periosteal bone. Two (7.14%) individuals with (SVL: 16.30 ± 0.199) exhibited 1 LAG each, seven (25.92%) bandicoots with (SVL: 17.08 ± 0.212 cm) exhibited 2 LAGs, four (14.81%) with (SVL: 18.57 ± 0.174 cm) recorded 3 LAGs, six (22.22%) individuals with (SVL: 20.71 ± 1.116 cm) showed 4 LAGs and another 5 bandicoots (18.52%) with (SVL: 23.88 ± 0.536) exhibited 5 LAGs in the phalangeal cross sections. The presence of either double lines or partly resorbed LAGs was not noticed. Back calculation indicated that the endosteal resorption rate is very low in this rat. The results suggest that this lesser bandicoot rat may live for a maximum of 5-6 years in the natural population.

2. RECORD OF EXOTIC AQUARIUM SUCKER MOUTH CATFISH *HYPOSTOMUS PLECOSTOMUS* IN THE KRISHNA AND YERLA RIVER, SANGLI DISTRICT

Abstract: First time recorded exotic aquarium sucker mouth catfish *Hypostomus plecostomus* in the Krishna and Yerla River near Bramhnal and Nimani respectively in 2021. These catfishes are very active; they live in the bottom-most layers, voracious feeder and

measures about 40.3 to 41.5 cm in length. The morpho-metric data of these catfish was standard body length 31.2 cm, head length 7.5 cm, dorsal fin rays 12, pectoral fin rays 7, pelvic fin rays 6 and anal fin rays 5 and caudal fin rays was 16 with single pair of barbells. They may be introduced accidentally or by aquarium people intensively in the river still don't know. *H. plecostomus*, also known as the sucker mouth catfish or the common pleco. It is a tropical freshwater fish belonging to the armored catfish family (Loricariidae), named for the longitudinal rows of armor-like scutes that cover the upper parts of the head and body. It is used in large aquariums and garden ponds to maintain the ponds and aquarium glass clean. People may leave them to natural water bodies when aquariums cannot accommodate them once they grow bigger. Fishes of this species grow up to 50 cm, and mature when they reach 15-20 cm. Many reviews highlighting the major threats from sucker mouth catfish they compete for food and space of bottom feeders and reduce the production and productivity of the ponds and lakes. They dominate the community and population by overgrowth, and eat the eggs of other fishes thereby reducing the numbers of other species. It is so difficult to eradicate them once these fishes get entry to the natural water bodies. There is a need to educate aquarists and hobbyists not to sell these fish in large numbers, and educate fishermen to eradicate this species by burying or for safe disposal. They may have a life span of 10-15 years. Detailed study is needed to know the feeding behavior, type of food consume, competition, reproductive pattern and preferred ecosystem of this catfish *H. plecostomus* in the Krishna and Yerla River of Sangli District.

3. SEASONAL VARIATION IN OVARIAN MORPHOLOGY OF FRESHWATER *HYPSELOBARBUS KOLUS* (SYKES, 1839)

Abstract: Annual reproductive cycle of female *Hypselobarbus kolus* was investigated during the age of 18-29 months through gross and histological studies. Annual variation in reproductive organ of female *H. kolus* was observed in the year of 2021. Usually *H. kolus* breeds during the month of June to August but due to the variation in rainfall and weather during the year of 2021 the maximum growth of ovary and the total fecundity in fish *H. Kolus* was measured in September to November. The development of ovary was measured with their body size and weight as well as otolith that show age of fish at which they attain the maturity. However, a comprehensive and more advanced study is needed for understanding of environmental control of reproduction in this fish. The present study shows the annual seasonal variation in mature do vary of *H.kolus*2021.

4. MICROSCOPIC TAXONOMICAL STUDY OF ZOOPLANKTONS OF INGALE LAKE PALUS, SANGLI DISTRICT (MS) INDIA

Abstract: Zooplanktons act as the main source of food for most of fish and other aquatic animals. They form an important link in food web of freshwater ecosystem. Ecologically, zooplanktons are one of the most important biotic components influencing all the functional aspects of an aquatic ecosystem such as food chain, food web and energy flow. Zooplanktons are good indicators of the changes in water quality because they are strongly affected by environmental conditions and respond quickly to changes in water quality. Hence microscopic taxonomical studies on zooplanktons of Ingale lake Palus of Sangli district was carried out. This investigation revealed that 11 genera belonging to 04 major groups were found as Rotifera 02 genera, Cladocera 02 genera and copepod 06 genera as well as 01 genera of protista.

5. ESTIMATION OF AGE AND LONGEVITY OF FRESHWATER FISH *PUNTIUSSARANA* BY LENGTH WEIGHT RELATIONSHIP AND ENUMERATION OF SCALES AND OTOLITH GROWTH LAYERS

Abstract: Age and longevity of freshwater fish *Puntius sarana* inhabiting the Krishna River, Sangli district was estimated by using length weight relationship and enumerating number of growth layers in lateral line scales and otoliths. One to six growth layers were observed in scales and otoliths of 135 individuals measuring their body size from 11 ± 0.0 to 23.04 ± 0.75 cm. Among these 1 fish with body weight 18 gm showed no LAG, 24 fishes with body weight 33.25 ± 4.5 gm possessed 1 LAG, 52 individuals with body weight 55.5 ± 8.44 cm showed 2 LAGs, 47 fishes weighing 91.76 ± 12.63 gm possessed 3 LAGs, four fish weighing 131.7 ± 9.25 gm showed 4 LAGs and seven fishes with body weight 167.7 ± 51.34 gm showed 5 LAGs in their scales and otoliths respectively. The high degree of positive correlation ($r = 0.91$) between body weight and length was shown in this fish populations. Although there was a positive correlation ($r = 0.81$) between body size and number of Lines of arrested growth (LAGs) layers. This fish population may live more than six years in the nature.

6. SEXUAL MATURITY, OVARIAL INDICES AND BREEDING BEHAVIOR IN THE FEMALE FRESHWATER CRAB *BARYTELPHUSA CUNICULARIS* (WESTWOOD)

Abstract: Sexual maturity, ovarian indices and breeding behavior were studied in the female fresh water crab *Barytelphusa cunicularis* from March 2020 to February 2021. The female attains sexual maturity at a carapace width of about 7.51 to 8.15 cm. Adult animal with carapace width of 7.0 to 8.5 cm are reproductive more active and the activity declines in older animals. The breeding period is from them on June to August with the peak period during June and July month. The study was carried out by observing weight of ovaries, calculating gonadal index and measuring carapace width. The ovary attains sexual maturity and the spawning begins in the month of June to July. The ovarian index is ranged from 2.87 to 3.28 with colour variation in ovaries in different reproductive phases. The preparatory period of reproduction extends from January to April. The breeding period is from May to August and the post reproductive and quiescent period is from September to December.

6. Minor projects and their impact or similar activities and their outcome: Physics

1. Effect of Artificial Negative Ions on the Nutrition and Growth of Wheat (*Triticum aestivum*) using Negative Air Ion Generator

Number of scientists concentrated in research on increase in yield and decrease production-cost of wheat. Negative air ion generator (NAI) plays very important role in the management of soil and crop yield in the agricultural sector. Main focus of the study is to see the effect of artificially generated negative air ions of the order of 10^9 per cc generated by negative air ion generator (NAI). Treatment of the generated negative ions was observed on nutrition and growth of wheat crop, which may help to increase the yield. The study was carried in the observatory, to observe the effect of artificial negative ions on the nutrition and growth of wheat crop. After treatment of negative air ions, we found that the values of rate of growth and eight mineral nutrients like N, P, K, Na, Fe, Zn, Mn and Cu of the wheat crop has been increased. Due to this experiment there is no need of using other fertilizers. It has given hopeful results to increase the yield and quality of wheat grains. Such study significantly alters the electrostatic configuration of the agriculture and increases cation holding capacity (CEC) of the soil to maintain fertility, giving healthy vigorous crop.

There are many harmful effects of air pollutions on plants; they can have direct poisonous impacts or by implication by changing soil pH followed by solubilisation of the sulphur dioxide can influence the opening of the stomata, bringing about excessive loss of water. Air is mixture of different gases. Natural air ions are generally produces many ways such as

gamma rays, natural radioactivity, cosmic rays, waterfalls and wind motions. Ionisation, attachment and clustering are three phases for stable form of ions. When atom loses or gains electron then it is said to be positively or negatively charged respectively. Process is called as ionisation. For atom or molecule which is electrically neutral and balanced, it is said to have an equal number protons and electrons. Losing an electron atom molecule becomes negative ions. The concentration of such negative air ions in the atmosphere affects human health and plant physiology. From this study we have to conclude that, negative ions acts as an antibacterial as well as antibiotic which help to kill bacteria or viruses present in plant and soil and increase growth of plant and nutrient level. In this study observed that negative air ion produced around wheat plant by negative air ion generator. Due to high negative potential 10^{10} negative air ions per cm^3 are generated. Soil in plant pot is more negatively charged. At the same time more cations are held by soil due to more negatively charged soil. As there is attraction between positively charged cation near the surface of soil and negatively charged soil as result cation exchange capacity (CEC) increased. Therefore more nutrients were provided to wheat plant. Automatically, nutrients of plant increases, due to that yield of wheat will increase without using any fertilizer or pesticides. This naturally produced wheat production is healthy for human health and production cost effective for developing country like India. Negative air ions produced by NAI are combined with pollutants surrounding the wheat crop and settle down on surface. Due to these reasons even though we are not used fertilizers or pesticides there is growth both in height and mineral nutrients in the NAI treated wheat plants. In Further study we will see the effect of treatment of negative ions using NAI on wheat crop in green house which will be helpful to the increase the yield of wheat grains.

Title of Project: Effect of Physicochemical Parameters on the Quality of Drinking Water of Krishna River, Sangli Maharashtra , India

M.V.Kamble, Deepali Shankar shivade, Amruta Sanjay Chavan, Supriya Ramchandra Mali,
Aaishwarya Bhujang Kakekar

Abstract- Krishna river is considered to be the holy river in Maharashtra .The present study is focused on the determination of physico-chemical parameters such as temperature, ph, EC, colour, odour, hardness, Total alkalinity, phosphate and magnesium,sulphate, Fluoride, Bicarbonate, nitrate. Total hardness of water samples from different sampling points. Increase of pollution concentration indicates an increase in the pollution load due to domestic sewage and industrial effluents into near by villages of krishna river at sangli district. In the present study various water samples were collected from different stations.

Name of Teacher: Mrs Swati S.Partil

Project Title : **“Preparation of silver nanoparticles by using Allium Sativum leaf extract”**

Green synthesis emerged as an exciting approach in the field of Nanotechnology .Biogenesis of Nano silver is a simple, Eco-friendly, safe and cost – efficacious and gaining importance now a days. We can synthesize silver (Ag) Nanoparticles using allium sativum leaves extract. Green synthesis of nanoparticles has been achieved by using environmentally acceptable solvent system. Eco-friendly reducing and capping agents were used for the synthesis of Ag Nanoparticles.

The present study Investigated the synthesis of silver Nanoparticles using le reducing agent as well as capping agents to synthesize silver Nanoparticles. The characteristics surface plasmon absorption was observed at around 429nm in UV-v is spectra confirms the formation of Nanosized particles. Green synthesized silver Nanoparticles were quantified spectrophotometrically at various concentration and also today the Green Nanoparticles synthesis the morphology and crystalline natural, were characterized by scanning electronic microscopy (SEM) energy dispersive x-ray analysis (EDAX) x-ray diffraction

(XRD) and confirm the active functional groups present in synthesized silver molecules by fourier transform Infra-red (FTIR) spectroscopy. More were the approach of plant-mediated synthesis appears the cost efficient, eco-friendly and easy alternative to conventional methods of silver Nanoparticles.

Project Title: Effect of Artificial Negative Ions on the Nutrition and Growth of Wheat

S.D. Pawar, P.S. Sankpal , S.B. Nalawade , M.S. Singh , N.S. Shinde , P.H. Mangsule

(Triticumaestivum) using Negative Air Ion Generator Number of scientists concentrated in research on increase in yield and decrease production-cost of wheat. Negative air ion generator (NAI) plays very important role in the management of soil and crop yield in the agricultural sector. Main focus of the study is to see the effect of artificially generated negative air ions of the order of 10^9 per cc generated by negative air ion generator (NAI). Treatment of the generated negative ions was observed on nutrition and growth of wheat crop, which may help to increase the yield. The study was carried in the observatory, to observe the effect of artificial negative ions on the nutrition and growth of wheat crop. after treatment of negative air ions, we found that the values of rate of growth and eight mineral nutrients like N, P, K, Na, Fe, Zn, Mn and Cu of the wheat crop has been increased. Due to

this experiment there is no need of using other fertilizers. It has given hopeful results to increase the yield and quality of wheat grains. Such study significantly alters the electrostatic configuration of the agriculture and increases cation holding capacity (CEC) of the soil to maintain fertility, giving healthy vigorous crop. There are many harmful effects of air pollutions on plants; they can have direct poisonous impacts or by implication by changing soil pH followed by solubilisation of the sulphur dioxide can influence the opening of the stomata, bringing about excessive loss of water. Air is mixture of different gases. Natural air ions are generally produces many ways such as gamma rays, natural radioactivity, cosmic rays, waterfalls and wind motions. Ionisation, attachment and clustering are three phases for stable form of ions. When atom looses or gains electron then it is said to be positively or negatively charged respectively. Process is called as ionisation. For atom or molecule which is electrically neutral and balanced, it is said to have an equal number protons and electrons. Losing an electron atom molecule becomes negative ions. The constriction of such negative air ions in the atmosphere affects human health and plant physiology. From this study we have to conclude that, negative ions acts as an antibacterial as well as antibiotic which help to kill bacteria or viruses present in plant and soil and increase growth of plant and nutrient level. In this study observed that negative air ion produced around wheat plant by negative air ion generator. Due to high negative potential 10¹⁰ negative air ions per cm³ are generated. Soil in plant pot is more negatively charged. At the same time more cations are held by soil due to more negatively charged soil. As there is attraction between positively charged cation near the surface of soil and negatively charged soil as result cation exchange capacity (CEC) increased. Therefore more nutrients were provided to wheat plant. Automatically, nutrients of plant in increases, due to that yield of wheat will increase without using any fertilizer or pesticides. This naturally produced wheat production is healthy for human health and production cost effective for developing country like India. Negative air ions produced by NAI are combined with pollutants surrounding the wheat crop and settle down on surface. Due to these reasons even though we are not used fertilizers or pesticides there is growth both in height and mineral nutrients in the NAI treated wheat plants.

In Further study we will see the effect of treatment of negative ions using NAI on wheat crop in green house which will be helpful to the increase the yield of wheat grains.

PUBLICATION LIST

M.V.Kamble

M.V. Kamble, Deepali Shankar Shivade, Amruta Sanjay Chavan, Supriya Ramchandra Mali, Aaishwarya Bhujang Kakekar (2022). Effect of Physicochemical Parameters on the Quality of Drinking Water of Krishna River, Sangli Maharashtra, India. Vidyawarta Peer-Reviewed International Journal.PP 149 -153. ISSN:2319 9318.

Research Paper : Mrs swati S.Patil

Journal :Progression in Science and Technology

Paper title :Preparation of silver nanoparticles using allium sativum leafextract

ISBN 978-81-948061-2-7

1st Edition 2021

S.D. Pawar

1) AIR ION CONCENTRATIONS AND POLLUTION INDEX FOR IRRIGATED AND NON- IRRIGATED VEGETATION AREAS AT RURAL STATION KHATAV(16.570N, 74.310E)

Journal of the Maharaja Sayajirao University of BarodaISSN: 0025-0422Volume-55, No.2 2021 505

GajananPatil* SubhashPawarJalindarBhosalePrachiPatil Pratik Patil.

2) Study of Facile Chemically Synthesized Polythiophene Thin FilmsDeepak B. Shirgaonkar^a

^a, S. D. Pawar^b 'RESEARCH JOURNEY' International E- Research Journal E-ISSN :2348-7143

April-2022

ACTIVITIES CARRIED OUT

6. Number of Hands on Experiments being conducted

| Sr. No. | Experiments | Date | Resource Person | No. of Beneficiary |
|---------|--|------------|--|----------------------------|
| 1. | “Laboratory Glassware’s and Chemicals: Handling and Precautions” | 28/04/2021 | Mr. Rahul J. Patil | 61 students |
| 2. | “Fish Aquarium: Construction and Maintenance” | 30/08/2021 | Prof. Dr. S. S. Patil | 22 students |
| 3. | Microtomy Technique | 30/09/2020 | Dr. S. S. Patil, Assistant Professor, Department of Zoology, ACS College, Palus | 55 students |
| 4. | Blotting Techniques | 31/10/2020 | Dr. S. M. Kumbar, Department of Zoology, ACS College Palus | 55 students |
| 5. | Estimation of Water quality | 31/03/2021 | Mr. A. B. Ghadage, Department of Zoology, ACS College Palus | 55 students 5 faculties |

7. Number of New Experiments introduced

| Sr. No. | New Experiments | Class | No. of Beneficiary |
|---------|---|--------------------|--------------------|
| 1. | Gel Electrophoresis | B.Sc. III | 18 students |
| 2. | Preparation of Polytene Chromosome | B. Sc. I | 90 students |
| 3. | Estimation of BOD | B. Sc. III | 18 students |
| 4. | Separation of Lipids by Thin Layer Chromatography | B. Sc. II & III | 110 students |
| 5. | Identification of Arthropods | B. Sc. II & III | 110 students |
| 6. | Chick embryo culture | B. Sc. II | 70 students |
| 7. | Human Karyotype | B. Sc. I | 90 students |
| 8. | ABO Blood group system | B. Sc. I, II & III | 110 students |

9. Training Received by faculty

| Sr. No. | Training Programme | Date | Faculty | Remarks |
|---------|--------------------|---|---------------------------|-------------------------------------|
| 1. | Refresher Course | Research Methodology 25/04/2022 to 09/5/2022 Ramanujan College New Delhi, HRDC, PMMMNMTT, Ministry of Education, | Mr. A. B. Ghadage | Updating in subject knowledge |
| 2. | Lecture Series | ‘Zoology in 21 st Century’ Organized by Department of Zoology 17 th to 22 nd January, | Prof. Dr. S. M. Kumbar | |

| | | 2022 | |
|----|------------------|---|------------------------|
| 3. | One Day Workshop | Opportunities in Skill Up gradation and Technology Donation in Sericulture held on 18 th April, 2022 | Prof. Dr. S. M. Kumbar |
| 4. | Lecture Series | 'Zoology in 21 st Century' Organized by Department of Zoology 17 th to 22 nd January, 2022 | Dr. S. S. Patil |

10. Exhibitions/seminars /training courses conducted: **Department of Zoology**

| Sr. No. | Activity | Day and Date | Resource Person | No. of Beneficiary |
|---------|--|-----------------------|---|--------------------|
| 1. | Book Exhibition | 15/03/2022 | Mr. S. D. Mane, Librarian, and Best Book Seller, Kolhapur | 56 students |
| 2. | Simple and Basic experiments in Physics | 14/03/2022 | Department of Physics | 68 students |
| 3. | Poster Exhibition for B. Sc. Students | 16/12/2021 | Prin. Dr. V. Y. Kadam | 71 students |
| 4. | B.Sc.- III student online seminar | 16/03/2022-27/03/2022 | Dr. S. S. Patil | 21 students |
| 5. | Poster Presentation Competition | 19/01/2022 | Mr. M. V. Kamble | 36 students |
| 6. | Preparation of Cell Culture Laboratory model | 21/04/2022 | Mr. A. B. Ghadage | 34 students |

11. Books purchased under DBT Star College Scheme: **See Annexure – III**

12. Outreach activities (Popular Lectures)

| Sr. No. | Topic | Day and Date | Resource Person | No. of Beneficiary |
|---------|--|----------------------------|--|--------------------------------------|
| 1. | Past, Present and Future in Apiculture | One Day workshop on | Dr. A. D. Jadhav, Department of Zoology, Shivaji University, Kolhapur at A. C.S. College, Palus | |
| 2. | One day National Conference RARDB-2022 | 10/03/2022 | Dr. S. M. Ghaskadabi, Agarkar Research institute, Pune Prof. Dr. N. P. Gramapurohit, Savitribai Phule Pune University Prof. Dr. C. B. Ganesh, Karnatak University, Dharwad Principal, Dr. R. R. Kumbhar, Vivekanand College, Kolhapur | More than 150 faculties and students |
| 3. | Celebration of 'Shivjayanti' | 25 th Jan. 2021 | Mr. H. S. Kale, department of History, ACS College Palus | 56 |

| | | | | |
|----|--|----------------------------|------------------------------------|---------------------|
| 4. | ‘Gram-Vavasta’ | 23 rd Mar. 2022 | Shri. Bhaskarrao Pere-Patil | 200 participants |
| 5. | ‘Jagane Sundar Ahe’ | 27 th Mar. 2022 | Dr. Suraj Balaso Chaugule | 215 Participants |
| 6. | International Women day program, activities like quiz Online Covid-19 survey | 28/2/2022 | Miss. Swati S. Patil | 48 Participants |
| 7. | Science Day Celebration | 28/2/2022 | Dr. S. D. Pawar Dr. S. S. Patil | 102 Participants |

14. Invited Lectures

| Sr. No. | Topic | Date | Resource Person | No. of Beneficiary |
|---------|---|----------------------------|--|----------------------------|
| 1. | ‘Environmental Conservation in 21 st Century | 26 th Oct, 2021 | Prof. Dr. Narendra Kulkarni PDVP College, Tasgaon | 67 |
| 2. | ‘Biological Techniques’ | 17 th Jan, 2022 | Mr. A. B. Mane ASC College, Ramanandnagar | 52 |
| 3. | ‘Fishery Technology’ | 23 rd Mar 2022 | Prof. Dr. M. P. Bhilave, Department of Zoology Shivaji University, Kolhapur | 53 Students |
| 4. | ‘Pathophysiology’ | 12/05/2022 | Prof. Dr. Nitin B. Kamble, Department of Zoology Shivaji University, Kolhapur | 40 students 5 faculties |
| 5. | ‘Future Carrier Opportunities in Zoology’ | 22/12/2020 | Prof. Dr. S. R. Yankanchi, Department of Zoology Shivaji University, Kolhapur | 40 students 5 faculties |
| 6. | ‘Biostatistics hands on training’ | 24-25/03/2021 | Mr. A. M. Ghadage Assistant Professor, Department of Statistics, KRP College Islampur | 40 students 5 faculties |
| 7. | ‘Career Guidance’ | 19/3/2022 | Dr. R.T. Sapkal | 48 |

**Reference books purchased under DBT Grant in Academic Year
2021-2022**

| Sr. No. | Name of Book | Author | Publication |
|----------------|---|---------------------------|------------------------|
| 1 | Concepts of Physics -1 | H.C. Verma | Bharti Bhawan |
| 2 | Concepts of Physics -2 | H.C. Verma | Bharti Bhawan |
| 3 | Radiation detection and measurement fourth edition | Glenn F. Knoll | Wiley |
| 4 | Solutions to concepts of Physics Vol-2 | H.C. Verma | New Rajneesh New Delhi |
| 5 | Analysis and Design of information systems second edition | James A. Senn | Tata Mcgraw-hill |
| 6 | Statical Mechanics second edition | Kerson Haung | Wiley |
| 7 | Elementary solid state Physics | M.Ali Omar | Pearson |
| 8 | Modern Physics Second edition | S.L. Kakani | Viva |
| 9 | Relativity | Albert Einstein | General Press |
| 10 | Properties of matter | S. Biswal | Vrinda |
| 11 | Material Science and Eng. Second edition | R Balasubramaniam | Wiley |
| 12 | Question and answer Guide to Astronomy | Bely, Chrristan, | Cambridge uni. Press |
| 13 | An Introduction to relativity | Narlikar | Cambridge uni. Press |
| 14 | Quantum Mechanics second edition | Gurbachan S. Chaddha | New Edge |
| 15 | Lasers theory and application | K. Thyagarajan A.k Ghatak | Macimillan |
| 16 | Introduction to Mathematical Physics | Charly Harper | Prentice Hall |
| 17 | Mag. Electricity | D.N. Vasudeva | S.Chand |
| 18 | Elements of quantum Mechanics | Kamal Singh | S.Chand |
| 19 | Cosmology | JayantNarlikar | Cambridge Uni. Press |
| 20 | Modern Physics | Therja | S.Chand |
| 21 | Essential of Quantum Mechinacs | Hakke | Asian Books |
| 22 | Nuclear Physics | John Lille | Wiley |
| 23 | Solid State Physics | Ashcroft | Thomson |
| 24 | Mechanics | D.S. Mathur | S. Chand |
| 25 | Int. to special relativity | Robert | Wiley |
| 26 | Electromagnetic for Eng. | Fawwaz T Ulaby | Pearson |
| 27 | Elements of Cosmology | Jayant Narlikar | University Press |
| 28 | Classical Electromagnetism | Jerrold Frankiln | Perason |
| 29 | Elements of Plasma Physics | S.N. Goswami | Central |

| | | | |
|----|--|---------------------|----------------------|
| 30 | Modern Physics concepts and applications | Sanjiv Puri | Narosa Pub. House |
| 31 | Oscillation and waves | M Ghosh | S.Chand |
| 32 | Applied Physics | J. Kumar | Vijay Nicole |
| 33 | Quantum Mechanics third ed. | Eugen Merzbacher | Wiley |
| 34 | Classical Mechanics | Rana and Jog | Mcgraw-hill |
| 35 | Theory and Problem of Electrodynamics | Joseph | Tata Mcgraw-hill |
| 36 | An Int. Modern Physics | Pandey and Tripathi | Vikas Pub. New Delhi |
| 37 | Optics and Atomic Physics | Khadelwal | Himalaiya |

Field/Industrial Visits and Study Tour

Department of Zoology: Field visit and study tour information

1. Visit to sea shores – Radhanagari Dam, Malvan, Sindhudurg fort, Vengurla, Redi Ganapathi and Shiroda beach in Konkan, Maharashtra on 7 and 8 March, 2022.

2. Visit to Maharashtra Government Apiculture Center Mahabaleshwar, Gondilwadi, Palus to study maintenance and management of exotic breeds African Bore and Switzerland Saanen breed 5th March, 2021.

Goats are among the main meat-producing animals in India, whose meat (chevon) is one of the choicest meats and has huge domestic demand. Due to its good economic prospects, goat rearing under intensive and semi-intensive system for commercial production has been gaining momentum for the past couple of years. High demand for goat and its products with potential of good economic returns have been deriving many progressive farmers, businessmen, professionals, ex-servicemen and educated youths to take up the goat enterprise on a commercial scale. The emerging favorable market conditions and easy accessibility to improved goat technologies are also catching the attention of entrepreneurs.

Poster presentation competition for B.Sc. III students on 19/1/2022

Department of Physics organized Poster Presentation competition on 19/1/2022 for B.Sc. III students. The main purpose of this programme was to get knowledge about the project and to encourage the students to study the articles related to project. Students were divided into four groups. The students prepared four projects. The subjects were Basic concepts of nanotechnology, Synthesis methods for nano particles, UV visible spectroscopy, biosynthesis of nanoparticles. The function was inaugurated by Hon. Principal Dr. R. S. Salunkhe. Dr S. S. Patil Head of Department of zoology, Dr. S. M. Kumbar coordinator of DBT project was present during the competition. One number was given by examiner. Miss Pratima Sankpal M.Sc. Nanotechnology worked as examiner. The programme was very fruitful for students. That increased the confidence of students. The programme also enhanced the knowledge related to project.

Total 36 students participated in the project.

Report Field visit and MOU with Perfect Electronics Wai

Department of Physics Organised field visit to Electronics Industry Perfect Electronics at Wai. Students of Department of Physics and one teacher participated in the visit organised on 9/2/22. Dr R.V.Dhelkle sir guided the students about building of different circuits on double sided PCB. He gave information about monostable multivibrator, astable multivibrator, inverting ac amplifier ,coding ,decoding of digital circuits. He also gave information how circuit work. The MOU between Department of Physics and Perfect electronics was signed at the time of visit. Mrs Swati Sahebrao Patil Assistant Professor Department of Physics organised the field visit. The students participated in field visit were Miss Amruta kadam, Miss Vaishnavi patil , Miss Poonam Jadhav, Miss Sakshi Pawar, Miss Prajakta lad and Miss Sanjana Gaikwad. Dr.S.D.Pawar and Mr M.V.Kamble gave valuable guidance about visit and signing MOU. Department of Physics also thankful to Principal Dr R.S.Salunkhe for supporting us and encouraged us.



Palus Shikshan Prasarak Mandals
Arts, Commerce and Science College Palus

Department Of Physics

Activity Study Tour Report

Study tour Palus to Science museum Pimpari-Chinchwad

Date 5/3/2022

Department of Physics has organised study tour of B.Sc.II students to Pimpari Chinchwad Science museum on 5/3/22. Total 15 students and teachers of department of Physics participated in study tour. We departed at 5.00am from palus. We reached at 11 am to museum. Students were really very excited for seeing the experiments in the museum, In the museum students can do different experiments like coupled oscillations. mixing of two immiscible liquids. magnetic line of force, Images formed by different mirrors. parabolic motion of straight object, most probable distribution of Maxwells law, use of power of steam, different engines working, how they are modified for maximum efficiency, Structure of RNA, DNA, Conservation of linear momentum .

Our students had enjoyed 3D show and Taramandal Show in the museum. After performing all the activities we departed at 4.45 pm for Palus. For this study tour We Department of physics are very much thankful to Department of Biotechnology to support us financially to conduct study tour .The tour is very much important to increase the knowledge and the practical experience. Their interest in applications was increased .We came back with much more confidence. This happened only because of financial support of DBT to our students from rural area.

Hands on training programme for water testing machine

Date 26/3/2021

The hands on training programme was conducted by Mr. Naidu ,Owner of Venkatesh suppliers, Pune. The programme was conducted on 26th March 2021 in Department of Physics, A.C.S.College ,Palus. Students of B. Sc.III and Dr.S.D.Pawar, Mrs Swati Patil, M.V.Kamble ,Miss Pratima Sankpal were present in the training Programme. Mr Naidu shared knowledge about Water testing Machine. The parameters that can be checked by using the machine. Mr. Naidu gave information about Measurement of PH, TDS, soil testing, turbidity, dissolved oxygen in water .

We Department of Physics is very much grateful to Department of Biotechnology ,New Delhi for funding us for this instrument of water testing.

Science Day Quiz Programme Organised by Department of Physics For Undergraduate students in association with DBT on 28/2/22

Department of Physics, Arts Commerce ,Science College Palus is organizing Sir C. V. Raman Memorial Science Quiz Competition 2022 on the occasion of National Science Day 28 February 2022 in association with Department of Biotechnology New Delhi.

The quiz consists of 50 questions based on general science and students from any undergraduate course can participate in it. Exciting cash prizes will be given to the first three winners who have registered for competition.

First Prize: Rs. 500

Second Prize: Rs. 300

Third Prize: Rs. 200

Certificates will be given to all participated candidates.

All teachers are requested to promote maximum students to participate in the event and make it a grand success. DR.S.D.Pawar

Mrs.S.S.Patil

Mr.M.V.Kamble

Department of Physics

A.C.S.CollegePaluse to students for registration

Total 48 students undergraduate students registered for online quiz competition.

The competition was conducted on 28/2/22 ,Monday.All registered students participated in Quiz.

https://docs.google.com/forms/d/e/1FAIpQLSeRAP4Z8AVc9fUImytpQbguMW8VkoEPJXLSuWsb6SYj_wjSIA/viewform?usp=sf_link **link for quiz**

Notice for Quiz

Greetings everyone.

Department of Physics,Arts Commerce ,Science College Palus is organizing Sir C. V. Raman Memorial Science Quiz Competition 2022 on the occasion of National Science Day 28 February 2022 in association with Department of Biotechnology New Delhi.

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DR.S.D.Pawar

Mrs.S.S.Patil

Mr.M.V.Kamble

Department of Physics

A.C.S.CollegePalus

organized under DBT Star College Scheme in the year 2021-22

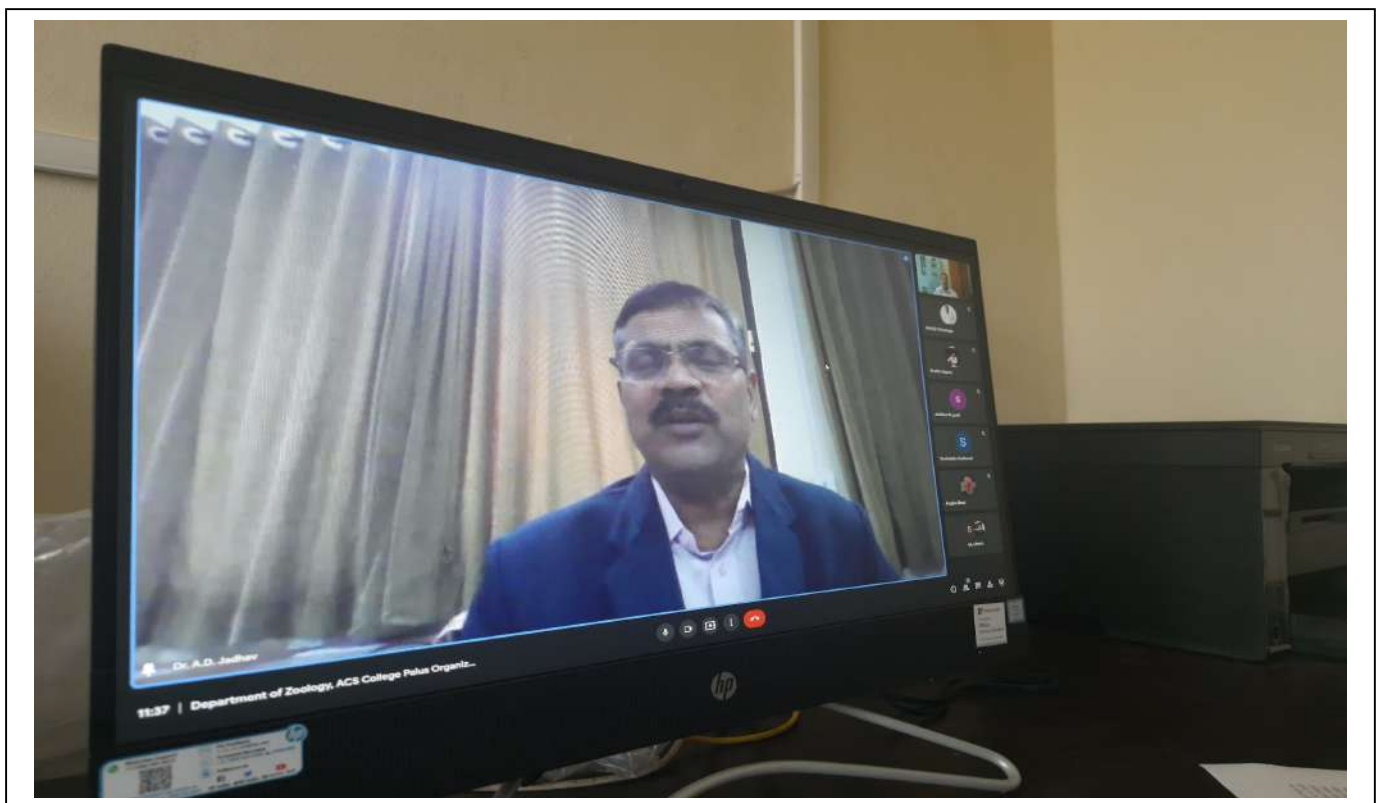
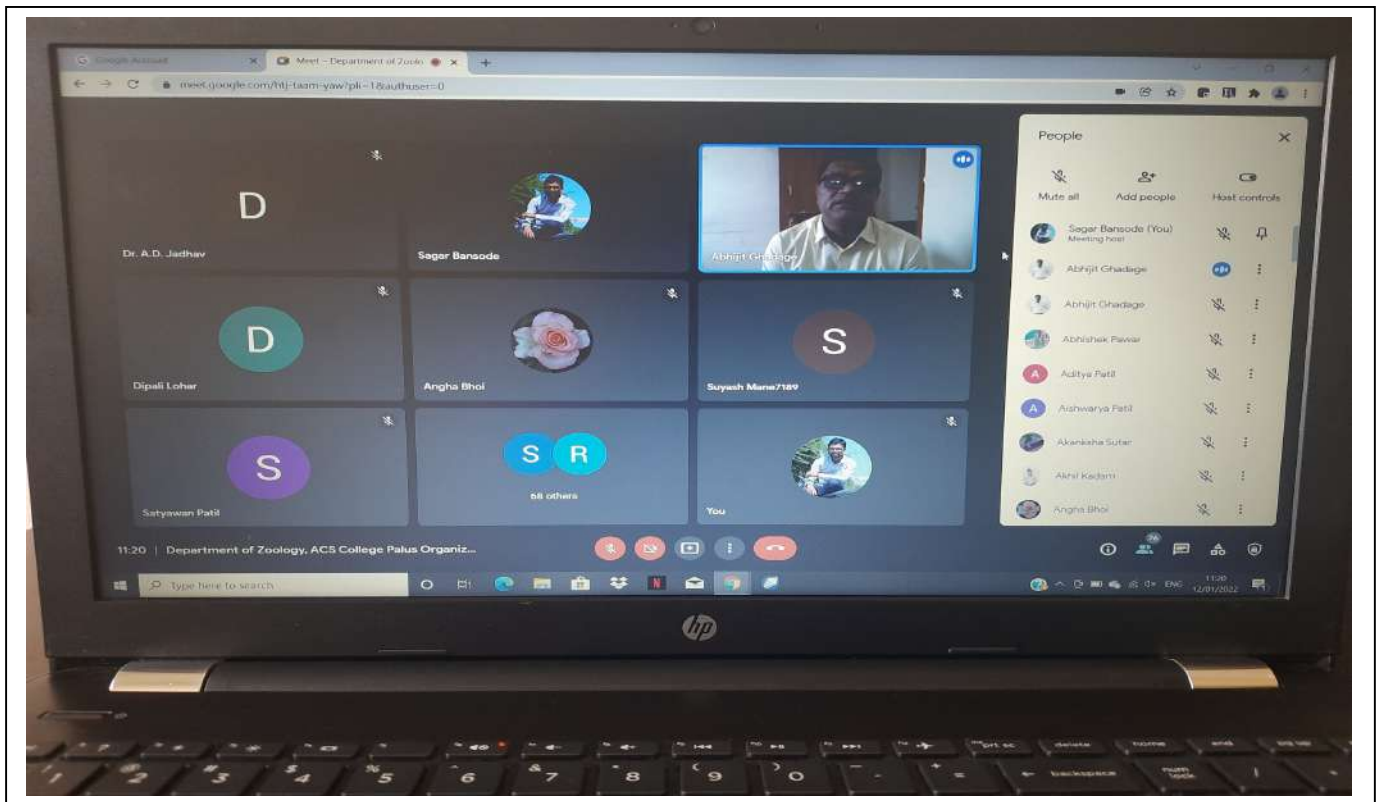
DEPARTMENT OF ZOOLOGY ACTIVITIES

| Sr. No. | Activities | Resource Person | Day and Date | No. of Beneficiary |
|---------|---|--|-------------------------|--------------------|
| 1. | Workshop “Laboratory Glassware’s and Chemicals: Handling and Precautions” | Mr. Rahul Patil, Assistant Professor, Balwant College Vita | Wednesday, 28/04/2021 | |
| 2. | Lecture on “What it is to be a Neuroscientist at NBRC?, Gurgaon, Haryana | Dr. Khushboo Punjabi, Scientist in NBRC, Haryana | Saturday, 06/05/2021 | |
| 3. | Workshop on “Fish Aquarium: Construction and Maintenance” | Prof. Dr. S. S. Patil, Krishna College Retre | Monday, 30/08/2021 | |
| 4. | Lecture on ‘Environmental Conservation in 21 st Century’ | Prof. Dr. Narendra Kulkarni, Department of Botany, PDVP College Tasgaon | Tuesday, 26/10/2021 | |
| 5. | DBT Mentorship Program | Dr. Garima Gupta, Scientist-E, Department of Biotechnology, New Delhi | Monday, 08/11/2021 | |
| 6. | Three days Workshop on “Fundamental in Biostatistics” | Mr. A. M. Ghadage, Assistant Professor, KNP College, Islampur | Saturday, 02-05/10/2021 | |
| 7. | Inauguration of M.Sc. ICT Laboratory and Poster Presentation ” | Principal Dr. V. Y. Kadam, MBSK Girls College, Kadegaon | Thursday, 16/12/2021 | |
| 8. | Lecture “Past, Present and Future in Sericulture’ | Prof. Dr. A. D. Jadhav, Department of Zoology, Shivaji University, Kolhapur | Wednesday, 12/01/2022 | |
| 9. | Lecture on ‘Biological Techniques’ | Mr. Abhijit B. Mane Assistant Professor, Arts, Science and Commerce College Ramanandnagar | Monday, 17/01/2022 | |
| 10. | One Day Hand on Training Workshop on “Biological Techniques: Microtomy, Blotting Techniques and Estimation of water Quality’ | Dr. S. S. Patil Dr. S. M. Kumbar Mr. A. B. Ghadage Department of Zoology, Arts, Commerce and Science College Palus, Dist. Sangli - 416310 | Thursday, 09/02/2022 | |
| 11. | One Day National Conference on “Recent Advances in Developmental and Reproductive Biology’ | Dr. S. M. Ghaskadabi, Agarkar Research institute, Pune Prof. Dr. N. P. Gramapurohit, Savitribai Phule Pune University Prof. Dr. C. B. Ganesh, Karnatak University, Dharwad Principal, Dr. R. R. Kumbhar, Vivekanand College, Kolhapur | Thursday, 10/03/2022 | |
| 12. | Guest Lecture ‘Fishery Technology’ | Prof. Dr. M. P. Bhilave, Department of Zoology, Shivaji University, Kolhapur | Wednesday, 23/03/2022 | |
| 13. | B. Sc. III year Zoology student study tour | Mahabaleshwar, Harihareshwar, Murud, Alibhag, Karnal Fort, Pune Rajiv Gandhi National Park | 19-21/03/2022 | |
| 14. | B. Sc. II year Zoology | Radanagari, Malvan and | 08-09/04/2022 | |

| | | | | |
|-----|---|---|-------------------------|--|
| | student study tour | Shinddurg fort and devghad, Vijaydurg | | |
| 15. | B. Sc. I year Zoology student study tour | Mahabaleshwar, Harihareshwar, Murud, Alibhag, Karnal Fort, Pune Rajiv Gandhi National Park | 13-14/04/2022 | |
| 16. | Guest lecture on 'Patho- Physiology with reference to Cancer Biology' | Prof. Dr. Nitin Kamble, Department of Zoology, Shivaji University, Kolhapur | Thursday, 12/05/2022 | |

Department of Zoology, ACS College Palus Organized Lecture Series Under DBT Star College Scheme on "Past, Present and Future in Apiculture"

Resource Person: Dr. A.D. Jadhav, Shivaji University Kolhapur



DBT Star College Scheme organized One Day Online Workshop on "Fish Aquarium: Construction and Maintenance"

Resource Person- Dr. S. S. Patil

GLASS FISH AQUARIUM
CONSTRUCTION, MANAGEMENT
AND MAINTAINENCE

DR. S. S. PATIL,
RTD. PROFESSOR AND HEAD, RTD.
DEPARTMENT OF ZOOLOGY
KRISNA MAHAVIDYALAYA RETHARE (Bk.), KARAD.
spsampatil1@gmail.com, Mob. No. 9822026797

dinkar bansode's screen

8. COLOURED CORALS AND BARNACLE

One Day Online Workshop on 'Laboratory Glassware and Chemicals: Handling and Precautions' under DBT Star College Scheme, New Delhi.

Resource Person- Mr. R. J. Patil, Balwant College Vita

REC

Arts, Commerce and Science College, Palus

Department of Zoology
Organize

One Day Online Workshop on

'Laboratory Glasswares and Chemicals : Handling and Precautions'

under DBT Star College Scheme, New Delhi.

Mr. Rahul J. Patil M.Sc., NET-JRF., SET.,GATE

Head and Assistant Professor

Department of Zoology
Balwant College, Vita.

E. mail- rahulspiderfauna1@gmail.com
9421309704

Date: 28/04/2021 * * Time : 11:00 am. Onwards

Rahul Patil's screen

12:12

REC

Mr. Sagar Bansode

Rahul Patil

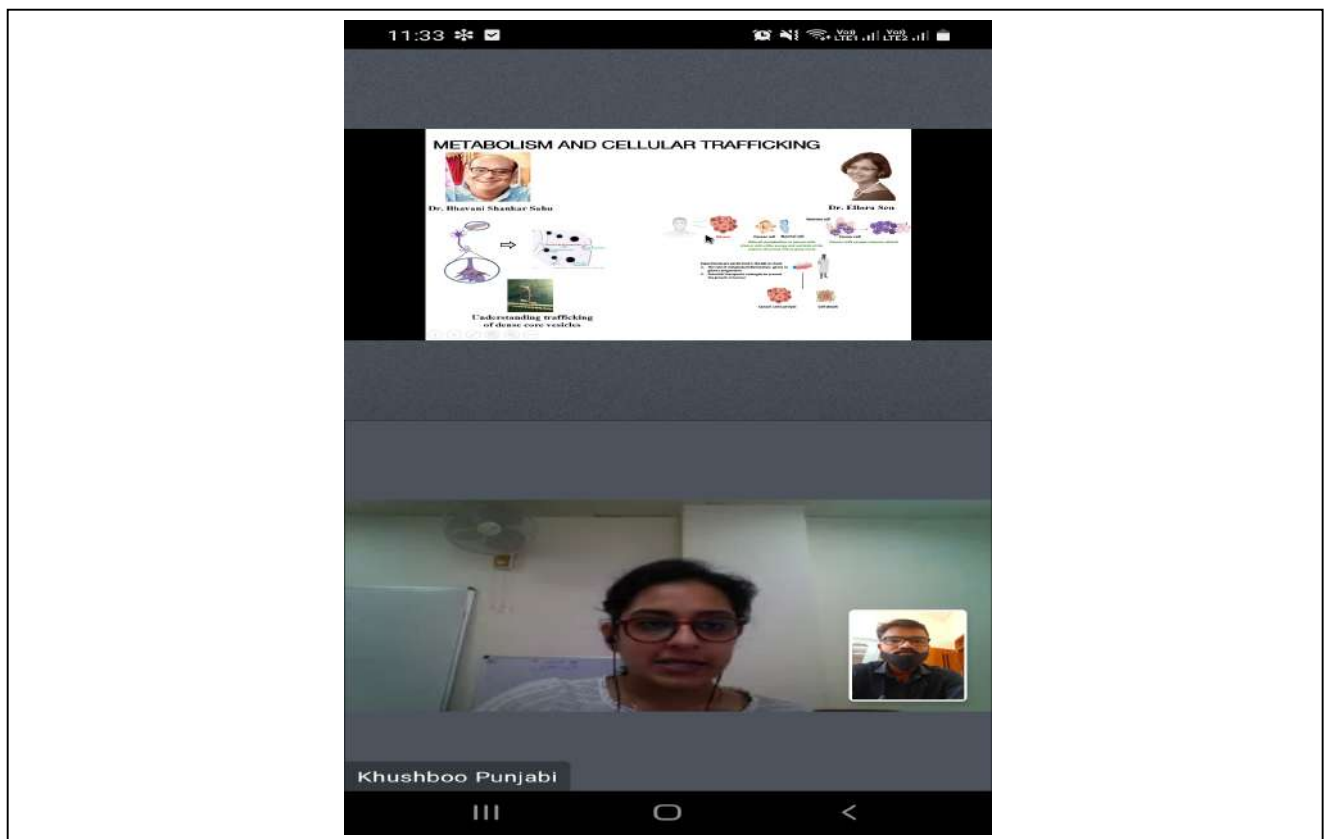
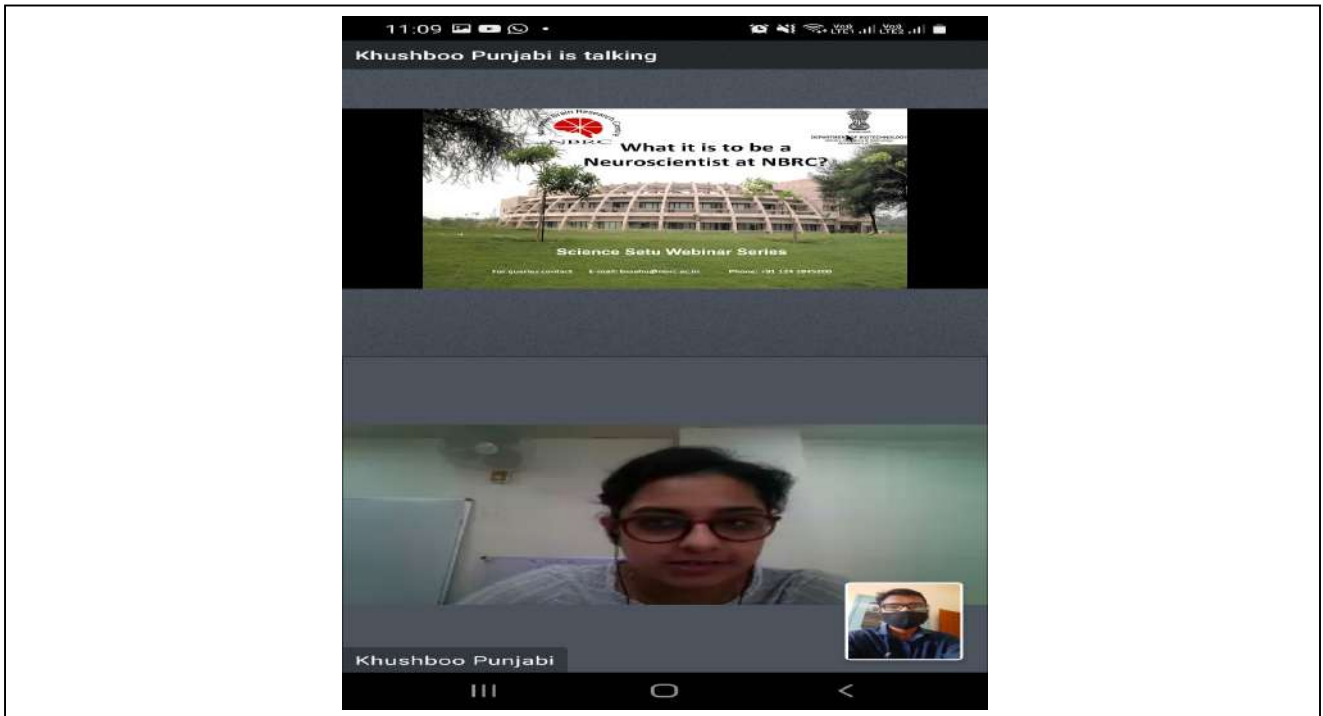
Abhijit Ghadage

Jyoti Chandrakant Kale

POSTER PRESENTATION COMPETITION UNDER DBT STAR COLLEGE SCHEME



Lecture on ‘What it is to be a Neuroscientist at NBRC by Dr. Khushboo Punjabi, Scientist in NBRC, Haryana on 6th May, 2021



Field Visit to Sagareshwar Wildlife Sanctuary under DBT Star College Scheme on 12th March, 2022



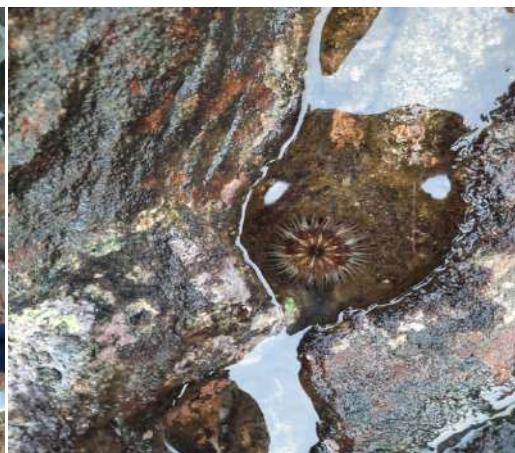
**Inauguration of ICT Laboratory and Poster Presentation Competition
Organized by Department of Zoology under DBT Star College Scheme on
16th Dec. 2021**



Book Exhibition organized by Department of Library under DBT Star College Scheme



**B. Sc. II Year Study Tour conducted by department of Zoology
Arts, Commerce and Science College Palus on 7-8/04/2022**



DEPARTMENT PHYSICS DBT ACTIVITY 2020-2022

| Sr. No | Name of Activity | Resource Persons | No. of Beneficiary | Date |
|---------------|--------------------------------------|--|---------------------------|----------------|
| 1 | Training program Perfect Electronics | Dr. R.V. Dhakele | 3 | 9/2/22-14/2/22 |
| 2 | Field Visit | Dr. R.V. Dhakele | 3 | 9/2/22 |
| 3 | Study Tour | Pune science park | 19 | 5/3/22 |
| 4 | Guest Lecture | Dr. S.T Mane | 56 | 11/3/22 |
| 5 | Study tour | Space center panalha SGI IIG Shivaji Uni | 39 | 23/3/22 |
| 6 | Hands on training | Nadu water testing | 4 | 26/3/21 |
| 7 | Hands on training | New instruments | 4 | 17/4/22 |
| 8 | Poster presentation | | 17 | 19/1/22 |
| 9 | Online Quiz | | 48 | 28/2/22 |
| 10 | Online Science day celebration | | | 28/2/22 |
| 11 | Wall Paper and poster presentation | | 41 | 15/12/22 |
| 12 | Zero Shadow day | | 21 | 7/5/22 |
| 13 | One day workshop and exhibition | Simple Experiments for English Medium School | 45 | 14/3/22 |
| 14 | Dr. Dada Nade Guest lecture | | 57 | 21/3/22 |
| 15 | Shree G. B. Patil | | 68 | 14/3/22 |
| 16 | Dr. R.T. Sapkal | Carrier Guidance | 48 | 19/3/22 |
| 17 | Project1 Dr. Pawar S.D. | | 5 | |
| 18 | Project 2 Sou. S.S. Patil | | 5 | |
| 19 | Project 3 Mr. M.V. Kamble | | 5 | |
| 20 | Quiz Prize Distribution | | 5 | 4/6/22 |

DBT activity

One day workshop on Simple and Basic experiments in Physics

Organised by Department Of Physics ,A.C.S.CollegePalus

Date :14/3/22 Time :10.30 am to 3.3.pm

Venue: ICT room and Department Of Physics

Department of Physics organised one day workshop on “Simple and Basic experiments in Physics” on 14/3/22.

The workshop was mainly for Highschool students and B.Sc.I year students. The aim of the workshop was to increase the curiosity and knowledge of highschool students. The whole programme was divided in to two sessions. first session was lecture of Shri.G.B.Patil ,Junior College teacher at Secondary school Bhilavadi .Toatal 38 high school students participated in the programme. The students were from English medium School Palus.

In the first session Shri G.B. patil sir gave a nice speech on simple science. He gave experimental demonstration of simple experiments like light travels in straight line, Total internal reflection, Boyles Law. All students actively participated in the lecture. That was golden opportunity to rural area high school student. He also explained how conservation theorem works.

Then the students were taken for the session lab visit. The students visited Our Physics laboratory .The saw different experiments arranged in the laboratory such as resonance of sound, Dispersion of Light. Plane diffraction Grating, Propagation of sound wave. Propagation of light wave. resonance of sound .The demonstration of the experiments was given by our college students.





Department of Physics organized Wall paper and poster presentation competition on 15 th December 2021. The theme of competition was Nobel prize winner from 2008-2018.



Science Day Quiz Programme Organised by Department of Physics For Undergraduate students in association with DBT on 28/2/22

Science day celebration 28 /2/2022

Department of Physics, A.C.S.Collegepalus celebrated Science Day 28/2/22.Honourable Registrar of Shivaji University Kolhapur Dr.V.N.Shinde was chief guest for the programme.

Department of Physics organised one day workshop on “Simple and Basic experiments in Physics” on 14/3/22.

The workshop was mainly for Highschool students and B.Sc.I year students.The aim of the workshop was to increase the curiosity and knowledge of highschool students. The whole programme was divided in to two sessions. First session was lecture of Shri.G. B. Patil ,Junior College teacher at Secondary school Bhilavadi. Toatal 38 high school stdents participated in the programme. The students were from English medium School Palus.

Our Palus-Ratnagiri-Ganpatipule-Palus route was finalized for the educational trip of the academic year 2021-21. March 17, 2021 is the date for the educational trip. For this we decided to travel to Sangli.



Poster Presentation Competition

Department of Physics, A.C.S. College palus Organized poster presentation competition for B.Sc.- III students on- 19/01/2021



Department of Physics has organised study tour of B.Sc.II students to Pimpri Chinchwad Science museum on 5/3/22. Total 15 students and teachers of department of Physics participated in study tour.



Hands on training programme for water testing machine

Date 26/3/2021: The hands on training programme was conducted by Mr. Naidu, Owner of Venktesh suppliers, Pune. The programme was conducted on 26th March 2021 in Department of Physics



Report Field visit and MOU with Perfect Electronocs Wai

Department of Physics Organised field visit to Electronics Industry Perfect Electronics at Wai.



DBT activity Two Days Training Programme
“Maintenance of domestic appliances”

Venue: Department of Physics

Date: 31st March 2022 time 10.30 am to 1.45 pm

1st April 2022 time 10.30 am to 1.45 pm



Annexure V

List of Equipments purchased under DBT Star College Scheme 2021-22

| Sr.No | Particulars | Date | Accession No. | Quantity | Rate /Pc |
|-------|--|---------|---------------|----------|---------------|
| 1 | Y by Koenig's method | 14-2-22 | 62 | 1 | 9204 |
| 2 | Cardinal points by turn table method | 14-2-22 | 63 | 1 | 28910 |
| 3 | Spectrometer | 14-2-22 | 64-65 | 2 | 12744 |
| 4 | Searle's viscometer | 14-2-22 | 66-67 | 2 | 5310 |
| 5 | Optical bench | 14-2-22 | 68 | 1 | 9558 |
| 6 | Double refracting prism | 14-2-22 | 69 | 1 | 3186 |
| 7 | Sodium source (55W) with transformer with wooden box | 14-2-22 | 70 | 1 | 9322 |
| 8 | Spherical aberration lenses | 14-2-22 | 71 | 1 | 425 |
| 9 | Tuning fork of good quality(Japan) model | 14-2-22 | 72 | 1 | 10726 |
| 10 | Resistance box-(Besto) 0-1000 | 14-2-22 | 73-76 | 4 | 2891 |
| 11 | Ballistic galvanometer with lamp and scale arrangement | 14-2-22 | 77-78 | 2 | 5310 |
| 12 | Rheostat 0-100 | 14-2-22 | 79-82A | 5 | 2242 |
| 13 | A.C. source (2amp) | 14-2-22 | 83-86 | 4 | 1711 |
| 14 | e/m by Thomson method | 14-2-22 | 87 | 1 | 17700 |
| 15 | Mortal and pistal 3", 4",5",6" | 14-2-22 | 88-91 | 4 | 1050 |
| 16 | IV characterization of solar cell | 14-2-22 | 92 | 1 | 10502 |
| 17 | Band gap of semiconductor using PN junction diode | 14-2-22 | 93 | 1 | 5664 |
| 18 | Biprism | 14-2-22 | 94 | 1 | 920 |
| 19 | Grating | 14-2-22 | 95-98 | 4 | 1380.5 |
| 20 | Prism | 14-2-22 | 99-102 | 4 | 1156.5 |
| 21 | Polar graph using photocell | 14-2-22 | 103 | 1 | 10502 |
| 22 | Mercury (250gm) | 14-2-22 | 104 | 1 | 2655 |
| 23 | Table lamp | 14-2-22 | 105-114 | 10 | 743.4 |
| 24 | Magnifying lens | 14-2-22 | 115=120 | 6 | 212.35 |
| 25 | Electric gun (good quality) | 14-2-22 | 121-125 | 5 | 460.2 |
| 26 | Thermal conductivity of copper by searl's apparatus | 14-2-22 | 126 | 1 | 10502 |
| 27 | K by lee's method with copper container | 14-2-22 | 127 | 1 | 6372 |
| 28 | Post office box | 14-2-22 | 128-129 | 2 | 2891 |
| 29 | D.C. source (TPSU) | 14-2-22 | 130=132 | 3 | 15635 |
| 30 | Rheostat 0-250 | 14-2-22 | 133-134 | 2 | 3186 |
| 31 | Rheostat 0-100 | 14-2-22 | 135-136 | 2 | 2336.5 |
| 32 | Miliameter A.C. 0-500 MA | 14-2-22 | 137-138 | 2 | 1274.5 |
| 33 | Miliameter D.C. 0-500 MA | 14-2-22 | 139-140 | 2 | 1274.5 |
| 34 | Voltmeter 0-10V | 14-2-22 | 141-144 | 4 | 637.25 |
| 35 | Voltmeter 0-5V | 14-2-22 | 145-148 | 4 | 637.25 |
| 36 | Micrometer 0-250 μ A | 14-2-22 | 149 | 1 | 637 |
| 37 | Micrometer 0-500 μ A | 14-2-22 | 150 | 1 | 637 |
| 38 | To determine specific heat of graphite | 14-2-22 | 151 | 1 | 11564 |
| 39 | Meld's experiment | 14-2-22 | 152 | 1 | 10620 |
| 40 | Viscosity by poisseuilles method | 14-2-22 | 153 | 1 | 5310 |
| 41 | Newton's ring method | 14-2-22 | 154 | 1 | 9558 |
| 42 | Digital Conduct meter | 14-2-22 | 155 | 1 | 17849 |
| 43 | Laser He-Ne | 14-2-22 | 156 | 1 | 26550 |
| | | | Total | | 394505 |

Annexure - V**List of Equipments Purchased by Zoology under DBT Star College Scheme**

| Sr. No. | Particulars | Date | Accession No. | Quantity | Rate/Unit |
|------------------------|-----------------------------|------------|---------------|----------|------------------|
| 1. | Refrigerator | 17/02/2022 | 2659 | 01 | 25,500.00 |
| 2. | Canon SLR Camera DL-1500 | 21/02/2022 | CR/C/S/0514 | 01 | 37,300.00 |
| Grand Total Rs. | | | | | 62,800.00 |

Annexure - V**List of Equipments Purchased by Zoology under DBT Star College Scheme**

| Sr. No. | Particulars | Date | Accession No. | Quantity | Rate/Unit |
|------------------------|-------------------------|------|---------------|----------|-----------------|
| 1. | Instant Electric Heater | | 2659 | 01 | 1,831.00 |
| Grand Total Rs. | | | | | 1,831.00 |