



*Pune District Education Association's*  
**Prof. Ramkrishna More Arts, Commerce & Science College,**  
**Akurdi-Pune Maharashtra, PIN- 411044**

**DBT-Star College Scheme**

**Annual Progress Report**  
**2018-19**

**Submitted**

**to**

**Department of Biotechnology**

**CGO Complex, Lodhi Road, Delhi**

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**Prof. Ramkrishna More Arts, Commerce and Science College, Akurdi-Pune****DEPARTMENT OF BIOTECHNOLOGY, NEW DELHI  
STAR COLLEGE SCHEME****Annual Progress Report for the Year 2018-19****College Information:**

1. Name of the College: **Prof. Ramkrishna More Arts, Commerce & Science College**  
**Sec. 28, Akurdi – Pradhikaran, Akurdi- Pune- 411044**
2. Name of Departments supported: **Zoology; Chemistry; Botany; Physics.**

Name of Coordinator, designation, address, phone & fax No., email:

<b>Name of the Principal</b>	Dr. M.G. Chaskar Prof. Ramkrishna More Arts, Commerce & Science College- Akurdi Pune Maharashtra Office-020 27659740 Mobile-9822913946 Email: <a href="mailto:manohar_c@hotmail.com">manohar_c@hotmail.com</a> <a href="mailto:chaskarmanohar@gmail.com">chaskarmanohar@gmail.com</a>
<b>Name of the Overall Coordinator</b>	Dr. Rashmi Morey Department of Zoology Prof. Ramkrishna More Arts, Commerce & Science College- Akurdi Pune Maharashtra Office-020 27659740 Mobile-9373322221 Email: <a href="mailto:moreyrashmi@gmail.com">moreyrashmi@gmail.com</a>

<b>Departmental Coordinators:</b>	
Zoology	<p>Dr. R.A. Morey</p> <p>Department of Zoology</p> <p>Prof. Ramkrishna More Arts, Commerce &amp; Science College-Akurdi</p> <p>020 27659740</p> <p>9373322221</p> <p>Email: <a href="mailto:moreyrashmi@gmail.com">moreyrashmi@gmail.com</a></p>
Chemistry	<p>Dr.K.M.Gadave</p> <p>Department of Chemistry</p> <p>Prof. Ramkrishna More Arts, Commerce &amp; Science College-Akurdi</p> <p>020 27659740</p> <p>9921135045</p> <p>Email: <a href="mailto:kmgadave@gmail.com">kmgadave@gmail.com</a></p>
Botany	<p>Dr.Pratima Kadam.</p> <p>Department of Botany</p> <p>Prof.Ramkrishna More Arts, Commerce &amp; Science College-Akurdi</p> <p>020 27659740</p> <p>9422537309</p> <p>Email: <a href="mailto:drpskadam@gmail.com">drpskadam@gmail.com</a></p>
Physics	<p>Prof Pawase Baburao Karbhari</p> <p>Department of Physics</p> <p>Prof. Ramkrishna More Arts, Commerce &amp; Science College-Akurdi</p> <p>020 27659740</p> <p>9960759798</p> <p>Email: <a href="mailto:pawase64@gmail.com">pawase64@gmail.com</a></p>

**3. No. of regular faculty with Ph.D. in the participating department: 17****Zoology-04; Chemistry-06; Botany-04; Physics-03.**

<b>Sr. No</b>	<b>Name of the teacher</b>	<b>Department</b>
1	Prin.Dr. M.G. Chaskar	Chemistry
2	Dr..A.A.Shaikh	Zoology
3	Dr.A.J.Khandagle	Zoology
4	Dr.R.A.Morey	Zoology
5	Dr.R.P.Chatterjee	Zoology
6	Dr.S.P.Rasale	Chemistry
7	Dr.R.A.Pawar	Chemistry
8	Dr.K.M.Gadave	Chemistry
9	Dr.D.R.Shinde	Chemistry
10	Dr. Nisha Sharma	Chemistry
11	Dr. B.M.Shinde	Botany
12	Dr.Kadam.P.S	Botany
13	Dr. V.D Shriram	Botany
14	Dr..H.B Sonawane	Botany
15	Dr. L.V Rane	Physics
16	Dr. P.S. Tambade	Physics
17	Dr.A.V. Rokade	Physics

**4. List of courses run by different participating departments:**

<b>Name of the Department</b>	<b>Regular programs/Courses</b>	<b>Additional Courses</b>
<b>Physics</b>	B.Sc. M.Sc. M.Phil.	Electrician; Automotive Electronics
<b>Chemistry</b>	B.Sc. M.Sc. M.Phil. Ph.D.	Pharmaceutical Analysis
<b>Botany</b>	B.Sc. M.Sc. M.Phil. Ph.D.	Plant Tissue Culture.
<b>Zoology</b>	B.Sc. M.Sc. M.Phil. Ph.D.	Medical laboratory Techniques; Food Science & Technology

**5. Cut-off Percentage for Admission in different courses in participating departments in the year 2018-19:**

<b>S.N</b>	<b>Course</b>	<b>Cut-off %</b>	<b>Result % 2017-18</b>	<b>Result % M.Sc.</b>
1	F.Y.B.Sc.	40	64.22	-
2	S.Y.B.Sc.	--	87.80	-
3	T.Y.B.Sc- Physics	--	52.78	76.00
4	T.Y.B.Sc.- Chemistry	--	65.00	62.79
5	T.Y.B.Sc- Botany	--	75.00	78.26
6	T.Y.B.Sc- Zoology	--	50.00	93.75

Students with low percentage at HSC exam were admitted at the first year, the DBT programs have contributed to increase their overall performance and their percentage score at graduation level and Post-graduation level.

# **DEPARTMENT OF ZOOLOGY**



**6. List of Projects undertaken by Student, Industrial Visits by Students; Summer training in last one year.**

**A. Students Projects- All Participating departments:**

Department	Projects allotted	Beneficiaries	Total Projects	Students Benefitted
Zoology	20	52	97	229
Chemistry	22	72		
Botany	25	45		
Physics	30	60		

**Student Project allotted:(Zoology) No. of Beneficiaries: 52; No. of projects 20.**

S.N.	Name of the Student	Class	Title of the Project
1	Rutuja Mane	F.Y.B.Sc.	Collection and preservation of locally available freshwater fishes
2	Sherya Deshmukh	F.Y.B.Sc.	
3	Bilkis Nadaf	F.Y.B.Sc.	
4	Snehal Tambe	F.Y.B.Sc.	Genetic Traits in Human
5	Rutuja Walhekar	F.Y.B.Sc.	
6	Dimple Kuparam	F.Y.B.Sc.	
7	Divya Basari	F.Y.B.Sc.	Freshwater snails of Pawana River: collection and Identification.
8	Jyoti Kadam	F.Y.B.Sc.	
9	Aishwini Bhandare	F.Y.B.Sc.	
10	Divya Gandhare	F.Y.B.Sc.	
11	Chaitali Nalage	F.Y.B.Sc.	
12	Asiya Naim Shaikh	F.Y.B.Sc.	Bird diversity in Pimpri Chinchwad Region.

13	Savita Rawool	F.Y.B.Sc.	Study of freshwater snails from selected area of Indrayani river.
14	Jaie Kalbhor	F.Y.B.Sc.	
15	Shubhangi Kumbhar	F.Y.B.Sc.	
16	Shweta Mote	F.Y.B.Sc.	
17	Sarika Sutar	F.Y.B.Sc.	Avian Diversity of Pune
18	Shejal Sabale	F.Y.B.Sc.	
19	Rutugandha Bhalekar	F.Y.B.Sc.	
20	Sneha Rajbhor	F.Y.B.Sc.	
21	Kehekasha Ansari	F.Y.B.Sc.	
22	Kashmira Pohanekar	F.Y.B.Sc.	
23	Janhavi Maybhate	F.Y.B.Sc.	Survey of Insect Pests in Akurdi region.
24	Kajal Adale	F.Y.B.Sc.	
25	Shweta S. Kanhurkar	S.Y.B.Sc.	Cotton Pest control by simple light trap device.
26	Shubham Rasal	S.Y.B.Sc.	Extraction of fish oil from fish waste.
27	Poonam Sable	S.Y.B.Sc.	Production of Bioplastic from Agricultural waste.
28	Sayali Mokashi	S.Y.B.Sc.	
29	Sneha Ganmote	S.Y.B.Sc.	
30	Amit Shirke	S.Y.B.Sc.	
31	Rahul Tekale	S.Y.B.Sc.	
32	Khan Shahid	S.Y.B.Sc.	
33	Balkunde Rushikesh	T.Y.B.Sc.	Study of Butterfly diversity in Pradhikaran Area of PCMC.
34	Chaudhari Deepak	T.Y.B.Sc.	
35	Pawar Parineeta	T.Y.B.Sc.	
36	Daripkar Omkar	T.Y.B.Sc.	Maintenance of house fly culture in laboratory.
37	Shaikh Yakub	T.Y.B.Sc.	
38	Ovhal Abhay Gulab	T.Y.B.Sc.	Larvicidal activity of Caffeine extracted from used tea leaves against <i>Culex sp.</i>
39	Satwadhare Laxmi Sahebrao	T.Y.B.Sc.	
40	Sonawane Trushali Satish	T.Y.B.Sc.	
41	Aandhure Ashwini Ashok	T.Y.B.Sc.	

42	Surbhaiya Bhagyashri Shashikant	T.Y.B.Sc.	Prevalence of <i>Trypanosoma</i> in Catfish <i>Clarius sp</i>
43	Gaikwad Pragati Arun	T.Y.B.Sc.	Effect of heavy metal ions on <i>Chironomous ramosus</i> larva
44	Ghenand Shivani Kiran	T.Y.B.Sc.	
45	Nikam Komal Ekanath	T.Y.B.Sc.	
46	Singh Poojakumari C	T.Y.B.Sc	Diversity of stink bugs(Hemiptera:Pentatomidae)in and around Pune,Maharashtra.
47	Chavan Manoj G	T.Y.B.Sc	
48	Swain Madhusmita D	T.Y.B.Sc	Study of Ant nests and nesting behaviour of Indian harvester ants
49	Pulwale Bhagyashri Namdev	T.Y.B.Sc	
50	More Nilesh Sukhdev	T.Y.B.Sc	Diversity of Arachnids in Pradhikaran area
51	Shinde Vijay Rajesh	T.Y.B.Sc	Extraction of collagen from fish scale of fresh water fishes
52	Shaikh Yaqub Farukh	T.Y.B.Sc	Production of Bio-ethanol from agricultural and domestic wastes using <i>Saccharomyces cerevisiae</i> .

**B. Industrial/Institutional Visits:****Total visits: 06; Students benefited: 452.**

Sr.No.	Place visited	Date	No. of beneficiaries
1	Govt.Fish breeding Center, Hadapsar, Pune	8/08/2018	70
2	Visit to National Aids Research Institute, Pune	24/09/2018	110
3	Visit to Katraj Dairy,,Pune	27/09/2018	78

<b>4</b>	Visit to Rajiv Gandhi Zoological Park, Pune	27/09/2018	115
<b>5</b>	Visit to Indian Institute of Tropical Meteorology, Pashan, Pune	28/09/2018	54
<b>6</b>	Visit to IISER Pune.	9/01/2019	25

### C. Summer school:

A Summer school was organized for the students on **Tools and Techniques in Biological sciences** from 2/07/2018 to 7/7/2018 for all undergraduate students. Students from the various colleges in and around Pune were also invited for the same.

Schedule of the Summer school-

(No of Beneficiaries: 92)

<b>Sr. No.</b>	<b>Date</b>	<b>Techniques</b>
1	02/07/2018	<ul style="list-style-type: none"> <li>• Paper chromatography</li> <li>• Thin Layer Chromatography.</li> </ul>
2	03/07/2018	<ul style="list-style-type: none"> <li>• pH Meter</li> <li>• Centrifuge</li> </ul>
3	04/07/2018	Principle, Working and applications of - <ul style="list-style-type: none"> <li>• Spectrophotometer</li> <li>• Colorimeter</li> </ul>
4	05/07/2018	<ul style="list-style-type: none"> <li>• DNA Isolation from animal tissue and its quantification.</li> </ul>
5	06/07/2018	<ul style="list-style-type: none"> <li>• Agarose gel electrophoresis</li> </ul>
6	07/07/2018	<ul style="list-style-type: none"> <li>• Isolation of Nuclei from animal tissue.</li> </ul>

**7. Training received by Faculty from participating departments:****A. Teachers Activities- Workshops, seminars and training courses organized:**

Department	Title	Date	No .of Teacher Beneficiaries
Zoology	One day workshop on Histology.	8/3/2019	22 (10 In-house and 12 from other colleges)
Inter-Disciplinary	Laboratory safety techniques.	18/03/19	25

**B. Teachers Activities- Workshops, seminars and training courses attended.**

S.N.	Name of the Teacher	Title and Place	Date
1	Akash Bagade	Hands on training in Molecular Biology Genome Bio Pvt. Ltd.	19-20 May2018
2	Akash Bagade	Certificate course in Limnology. Modern College, Pune	20 <sup>th</sup> Feb. 6 <sup>th</sup> March 2019
3	Bitika Baidya	Certificate course in Limnology. Modern College, Pune	20 <sup>th</sup> Feb. 6 <sup>th</sup> March 2019
4	Pallavi Takawane	Selected for the State level AVISHKAR competition	15 <sup>th</sup> Jan to 18 <sup>th</sup> Jan 2019

**8. List of Exhibitions /Seminars/Training Courses conducted by the college:**

Inter college science exhibition was organized by college on 12th December 2018.

Following are the details of this event-

Sr. No.	Name of the students	Class	Name of Projects	Name of the College
1	Ansari Kehekasha	F.Y.B.Sc.	Neuron and its characteristics	RMC, Akurdi
2	Shreya Mane Deshmukh	F.Y.B.Sc.	DNA Structure	RMC, Akurdi
3	Asiya Shaikh	F.Y.B.Sc.	DNA Fingerprinting	RMC, Akurdi
4	Kshitija Deo Shivani Dubey	S.Y.B.Sc.	Biocontrol on Pistia by Freshwater Fishes	D.Y Patil college Akurdi Pune
5	Ruchita Kale Maya Chavariya	S.Y.B.Sc.	Extraction of crude Calcium from waste	D.Y Patil college Akurdi Pune
6	Sanket Patil Ravindra Pawar	S.Y.B.Sc.	Natural & cheapest green tea from wild plant species	D.Y Patil college Akurdi Pune
7	Tejaswini Sarode Shama Shaikh	F.Y.B.Sc.	Effect of garbage dumping on freshwater animals in Pavana River	D.Y Patil college Akurdi Pune
8	Harshada Kudande Dhanashree Ballal	T.Y.B.Sc.	Nesting behavior of Giant Squirrel at Bhimashankar Wildlife Sanctuary	D.Y Patil college Akurdi Pune
9	Shubhangi Lokhande Ritika Khaladkar	S.Y.B.Sc.	Model Dissection: Best option for dissection of animals	D.Y Patil college Akurdi Pune
10	Akansha Kate Swapnali Pawar	F.Y.B.Sc.	Endangered plant species in Kalsubai Harishchandragad Wildlife Sanctuary	D.Y Patil college Akurdi Pune

11	Chivilkar Aasiya Aslam Chivilkar Amina Mubeen	T.Y.B.Sc.	Health and Nutrition	Poona College, Pune
12	Shaikh Maaz Riyaz	T.Y.B.Sc.	Ethology	Poona College, Pune
13	Shaikh Aiman Mulla Anam Shafiq Dafedar	T.Y.B.Sc.	Save Earth	Poona College, Pune
14	Sayyad Shifa Sadique	T.Y.B.Sc.	Cord blood banking	Poona College, Pune
15	Shaikh Sadiya Saleem	T.Y.B.Sc.	Epidemic management	Poona College, Pune

**Workshops for participating Departments-**

Department	Title	Date	No. of beneficiaries	Collaboration if any,
Zoology	Vermi-composting	26/9/2018	185	In-House expertise.
Zoology	<b>Foldscope-</b> Uses and assembly.	7/01/2019	225	In association with- <ul style="list-style-type: none"> <li>• Pebam Munindro Singh, principal Investigator, Dera Nathung Govt.College Itanagar, Arunachal Pradesh</li> <li>• Yumkhaibam Premabati, Principal Investigator, Navodaya Vidyalaya ,Doimukh, Itanagar, Arunachal Pradesh</li> <li>• Dr. Vikas Jha Senior Research Analyst, National Facility for Bio Pharmaceuticals, D.N.Khalsa college, Mumbai</li> </ul>

**Hands-on training.**

Department	Title	Date	No. of beneficiaries	Collaboration if any,
Zoology	Hands on training in Molecular biology techniques and Bioinformatics	3rd and 4th Jan 2019	110	National centre for cell science(NCCS)

**9. Name, Designation, Host Institute of Guest Faculty Invited:**

S.N	Topic	Date	No. of beneficiaries	Class	Resource person
1	Hydra and its use as a model system	03/08/18	120	FY and S.Y.B.Sc .	Dr.Surendra Ghaskadbi, CSIR-Emeritus Scientist Agharkar research Institute,(ARI)Pune
2	Zebra fish as a model organism	03/08/18	122	FY. and S.Y. B.S.c.	Dr.Chinoy Patra,Scientist C, Agharkar research Institute,(ARI)Pune
3	Career opportunities in Biological Research	6/08/18	80	S.Y. B.S.c.	Dr.Sachin patil ZSI,Akurdi Pune
4	DNA Fingerprinting	6/09/18	120	FY, SY, TY. B.Sc.	Dr.Yogesh Shouche, Scientist G” NCCS,Pune
5	Morpho-taxonomy of insects	12/12/18	78	S.Y. BSc.	Dr.V.D. Hegde, Scientist,D, ZSI,Akurdi,Pune
6	Recent advances in HIV Research	16/03/19	110	SY.TY B.Sc.	Dr.Vijay Nema, Scientist E, National Aids research Institute, Pune
7	Advances in Molecular Biology	4/01/19	104	S.Y, T.Y .B.Sc.	Dr. Shrikant Pawar, Scientist C,National centre for cell sciences(NCCS),Pune



**Lectures organized by the host department: Beneficiaries 414**

S.N.	Name of the Resource Person	Title of the lecture	Date	No. of Beneficiaries
1	Dr.A.A.Shaikh	Bee keeping and rearing techniques	10/12/2018	110
2	Dr.Abhay J.Khandagle	Zoogeography and Animal Distribution.	13/12/2018	98
3	Dr.Rashmi Morey	Cytoskeleton	8/03/2019	96
4	Dr.Ranjeeta Chatterjee	Echinoderms	9/3/2019	110

**10. Date of Advisory Committee Meeting:** 8<sup>th</sup> April 2019

**11. List of New Practicals /Demonstrations introduced in different departments in the last one year:**

**Total Additional Practical for – F.Y.B.Sc.- 06-; S.Y.B.Sc. 05; T.Y.B.Sc.-05, Total -16**

ZOOLOGY	Additional Practicals /Demonstrations
F.Y.B.Sc.	<ol style="list-style-type: none"> <li>1. Temporary preparation of different type of cells and their microscopic observation</li> <li>2. Observation of Mitochondria from suitable material (leg muscle of Cockroach/ Plant material).</li> <li>3. Study of Barr body in human.</li> <li>4. To study the Principle, working and applications of micropipette, PH meter, digital balance, with simple experiments</li> <li>5. To study the Principle, working and applications of autoclave, centrifuge and Laminar Air flow unit</li> <li>6. Estimation of hemoglobin</li> </ol>
S.Y.B.Sc.	<ol style="list-style-type: none"> <li>1. Culturing of <i>E. Coli</i> in solid and liquid media</li> <li>2. Study of colorimetry and spectrophotometry</li> <li>3. Estimation of protein content from fresh fish</li> </ol>

	<ol style="list-style-type: none"> <li>4. Total and differential count of WBC.</li> <li>5. Preparation of Normal, molar and standard solutions, phosphate buffers, serial dilutions</li> </ol>
T.Y.B.Sc.	<ol style="list-style-type: none"> <li>1. Estimation of Starch</li> <li>2. Isolation of DNA and its quantification.</li> <li>3. Set up of Bioassay to determine the toxicity of a given compound</li> <li>4. Preparation of Insect culture and observation of life cycle of common vectors and whole mounts preparation.</li> <li>5. Detection of adulterants from milk and milk products</li> </ol>

## **DEPARTMENT OF CHEMISTRY**

## 6. List of Projects undertaken by Student, Industrial Visits by Students; Summer training in last one year.

### A. Students Projects- 72 beneficiaries; 22 Projects

Students develop research skills and apply appropriate analytical technique. Students use theoretical knowledge to appropriately frame research design and analysis. Projects have helped students to do the experiments themselves and learn the concepts.

S.N.	Name of the student	Class	Title of the Project
1	Nanda Devkate,	T.Y.B.Sc.	Sol-gel synthesis of $\text{TiO}_2$ and its application in dye sensitized solar cell.
2	Tejaswi Khedkar		
3	Shreya More	S.Y.B.Sc.	Antifungal activity of Zinc sulphate
4	Sayali Mokashi		
5	Sneha Ganmote		
6	Vrushali Bhairavkar,		
7	Rushikesh Vanve		
8	Arti Dagadghate,	T.Y.B.Sc	Synthesis of silver nanoparticle using plant extract
9	Kajal Sawant		
10	Rutuja Mane	F.Y.B.Sc.	To prepare a sample of Cupra ammonium Rayon threads from filter paper
11	Vasudeo Walunj,		
12	Patil Nikita		
13	Suruchi S. Dongare		
14	Bansode Sandeep	S.Y.B.Sc.	Extraction of Lycopene and its use as sensitizer in $\text{ZnO}$ dye sensitized solar cell
15	Prajakta Sutar		
16	Waghmare, Anjali		
17	Harshada Bhondave		
18	Rupesh Kalekar		
19	Rohini Khaire,	T.Y.B.Sc.	

20	Damini Kalekar		Extraction of Nicotine Sulphate from Cigarettes.
21	Magar karishma		
22	Sarika Sutar,	F.Y.B.Sc.	Laboratory chemical waste recycling.
23	Bilkis Nadaf		
24	Kalapure Rutuja		
25	Poonam Manjare		
26	Tanvi, Tasedar, ,	S.Y.B.Sc.	Mechanochemical synthesis of Fe(III) oxalate and synthesis nano Fe <sub>3</sub> O <sub>4</sub> from it
27	Swamy Channamma		
28	Shirke Ammit,		
29	Kambale Sagar		
30	Rajashree Lohar,	T.Y.B.Sc.	Estimation of Vitamin C from various citrus fruits by volumetric method.
31	Komal Chavan		
32	Prashant Jadhav		
33	Nikhil Mohalkar,	S.Y.B.Sc.	Ammonium Sulphate as a Liquid fertilizer
34	Swaraj Shinde		
35	Dayand Tilekar		
36	Jagtap Neelam		
37	Swati Halade,	T.Y.B.Sc	Water Testing kit for estimation of total hardness, Cl <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup> using spectrophotometry
38	Rutuja Gholap		
39	Lahu Yenpure	T.Y.B.Sc	Determination of colour, density , PH and conductivity of soil samples from nearby area
40	, Rohan H Garade		
41	Shubham Devrukhkar,	T.Y.B.Sc.	Determination of hardness, pH, SO <sub>4</sub> <sup>2-</sup> , Cl <sup>-</sup> and TDS of freshwater samples.
42	Rohan Sarade		
43	Vinay Deshmukh,	T.Y.B.Sc.	

44	Shivani Farakate		Study and construction of crystal structure of NaCl and CsCl
45	Shraddha Dabhade		
46	Sandeep Mule,		
47	Rohan Kashid		
48	Pratiksha Gosavi	T.Y.B.Sc	Detection of milk adulterants with rapid testing method.
49	Shital Shirke		
50	Sonwane Pratiksha,	S.Y.B.Sc.	Synthesis of antacid tablets $[\text{Al}(\text{OH})_3$ and $\text{Mg}(\text{OH})_2$ and evaluation of their acid neutralizing capacity
51	Kambale Pratiksha,		
52	Abuj Ashwini,		
53	Garge Sonali, Vidya Shinde		
54	Ghute Santosh,	T.Y.B.Sc.	Polarimetry studies of sugar treated with extract of Gymnema-Sylvester plant leaves.
55	Sutar Kanchan		
56	Dangat Mayuri		
57	Pooja Shinde, ,	F.Y.B.Sc.	Design and construction of floor cleaning appliance model.
58	Chaitali Nalage		
59	Shelke Pallavi		
60	Onkar Valse		
61	Manjasha Balbhim Patil	T. Y. B.Sc.	Study of diffusion mechanism of $\text{CuSO}_4$ in water at different temperature
62	Sandya Patil		
63	Kulkarni Abhishek	T.Y.B.Sc.	Synthesis of Ti doped ZnO catalyst and evaluation of its photocatalytic activity
64	Shradha Dabhade		
65	Somya Sowmya Mol. S.		
66	Gaikwad Sanjana,	S.Y.B.Sc.	Synthesis of polyaniline and evaluation of its ammonia sensing ability.
67	More Sanket		
68	Kulkarni Pragati,		
69	Patil Ranjeet		

70	Randive Prajakta,	T.Y. B.Sc.	Synthesis of ZnO Nanoparticles and study of its X-Ray diffraction characterization .
71	Pranjali Shelke		
72	Bhagyashree Yenpure		

**B. Industrial Visits:****Total visits: 6;****Students benefited: 218**

Sr.No.	Place visited	Date	No. of beneficiaries
1.	Indian Institute of Tropical Meteorology, Dr. Homi Bhabha Road, Pashan , Pune-411008.	28/09/18	32
2.	Centre for Materials for Electronics Technology, C-MET, Pashan ,Pune-411008	28/09/18	32
3.	Indian Institute of Science Education (IISER), Pashan, Pune	09/01/19	30
4.	Sant Tukaram Sugar industry, Kasarsai, Pune	01/02/19	24
5.	Science Park, Chinchwad, Pune	25/02/19	50
6.	Visit to Waste water treatment plant Akurdi, Pune	07/03/19	50

**7. Training received by the faculty:**

Department	Title	Date	No .of Teacher Beneficiaries
Chemistry	One day workshop on FTIR Instrument by Lab India.	25/08/2018	13

S. N.	Name of the Teacher	Title and Place	Date
1.	Dr. R.A. Pawar	International conference on materials and environmental Science Shri Yashwantrao Patil Science college, Solankar and the New college, kolhapur	07 – 08 December 2018
		Resources in Teaching, learning and research.B.J.S. College, Wagholi, Pune.	20-21 February 2019
2.	Dr. D. R. Shinde	International conference on materials and environmental Science Shri Yashwantrao Patil Science college, Solankar and the New college, kolhapur.	07-08December 2018
		Workshop on Q-dot and nanostructured materials, characterizations, processing and device fabrication organized by Center for electronics technology (C-MET), Pune and University of Leeds, UK	20 -21 February 2019
3.	Dr. S.P.Rasale	National conference on Recent interdisciplinary approaches in chemical, physical and life sciences.	11- 12 January 2019



		Organized by Anantrao Pawar College, Pirangut, Pune.	
4.	Dr. K.M.Gadave	National conference on Recent interdisciplinary approaches in chemical, physical and life sciences. Organised by Anantrao Pawar college, Pirangut, Pune.	11 - 12 January 2019

### 8. List of Exhibitions/Seminars/ Training courses conducted by the department:

#### A. Exhibition-Intercollege science exhibition and poster competition.

Inter college science exhibition was organized by college on 12<sup>th</sup> December 2018

Following are the participants in this event- 41 Beneficiaries

Sr. No.	Name of the students	Class	Name of Projects	Name of the College
1	Apurva S. Pokale, Anjali A. Pangule	T.Y.B.Sc.	Isolation of natural products	Dr. A.B. Telang senior college College Akurdi
2	Amruta Bhaskar Kadam	T.Y.B.Sc.	Greenhouse effect	Dr. A.B. Telang Senior College College Akurdi, Pune
3	Pragati Sakharam Dhotre Bakshi Sidhi Happy	T.Y.B.Sc.	Content of cold drink available in market	Dr. D.Y.patil ACS College , Pimpri, Pune
4	Antarisksh Pradeep Bangar	T.Y.B.Sc.	Study of content of ascorbic acid in citrus food	Dr. D.Y.patil ACS College , Pimpri, Pune
5	Madhuri Maruti Sorte	T.Y.B.Sc.	Models of Symmetry	Dr. D.Y.patil ACS College Akurdi, Pune
6	Nanda Devkate, Tejaswi Khedkar	T.Y.B.Sc.	Dye sensitized solar cell	RMC College Akurdi, Pune
7	Arti Dagadghate, Kajal Sawant	T.Y.B.Sc	Synthesis of silver nanoparticle from plant extract	RMC College Akurdi, Pune
8	Rutuja Mane	F.Y.B.Sc.	Green Chemistry	RMC College Akurdi, Pune

9	Rohini Khaire, Damini Kalekar	T.Y.B.Sc.	Extraction of Nicotine Sulphate From Cigarettes	RMC College Akurdi,Pune
10	Sarika Sutar, Bilkis Nadaf	F.Y.B.Sc.	Green Synthesis	RMC College Akurdi, Pune
11	Rajashree Lohar, Komal Chavan	T.Y.B.Sc.	An Alternative for Plastic	RMC College Akurdi, Pune
12	Nikhil Mohalkar, Swaraj Shinde, Dayand Tilekar	S.Y.B.Sc.	Ammonium Sulphate as a Liquid fertilizer	RMC College Akurdi, Pune
13	Swati Halade, Rutuja Gholap	T.Y.B.Sc	Water Testing	RMC College Akurdi, Pune
14	Lahu Yenpure, Rohan H Garade	T.Y.B.Sc	Soil Analysis	RMC College Akurdi, Pune
15	Shubham Devrukhkar, Rohan Sarade	T.Y.B.Sc	Quality of Irrigation Water	RMC College Akurdi,Pune
16	Vinay Deshmukh Shivani Farakate Shraddha Dabhade	T.Y.B.Sc.	Crystallography	RMC College Akurdi, Pune
17	Sandeep Mule, Rohan Kashid Pratiksha Gosavi, Shital Shirke	T.Y.B.Sc.	Detection of Adulterants with rapid testing	RMC College Akurdi, Pune
18	Pranjali Shelke, Bhagyashree Yenpure	T.Y.B.Sc.	Synthesis of antacid tablets.	RMC College Akurdi, Pune
9	Ghute Santosh, Sutar Kanchan Dangat Mayuri	T.Y.B.Sc.	Qualitative test for milk purity.	RMC College Akurdi, Pune
20	Pooja Shinde, Chaitali Nalage	F.Y.B.Sc.	Floor Cleaner	RMC College Akurdi,Pune.

**B. Training Program in Industry:**

A training program for students was organized from 19/11/2008 to 24/11/2018 at “A-one CED coating” Nashik Highway, Chakan- MIDC, Pune-05

Twenty students participated in the training program which was focused on principles and practices in Coating, spray painting and blasting.

<b>.Sr. No.</b>	<b>Name of students</b>	<b>Sr. No.</b>	<b>Name of Students</b>
1	Ms. Shivani Farakate	11	Mr. Santosh Ghute
2	Ms. Damini Kalekar	12	Mr. Rohan Sarade
3	Ms. Rohini Khaire	13	Ms. Sandhya Shete
4	Ms. Sheetal Shirke	14	Mr. Rohan Kashid
5	Ms. Rajashree Lohar	15	Ms. Komal Chavan
6	Ms. Pratiksha Gosavi	16	Ms. kajal Sawant
7	Ms. Rutuja Gholap	17	Mr. Yogesh Mhalaskar
8	Mr. Rohan Garade	18	Ms. Bhagyashri Yenpure
9	Ms. Shradha Dabhade	19	Ms. Swati Halde
10	Ms. Pranjali Shirke	20	Mr. Lahu Yenpure

**Workshops -Total 01; Total Beneficiaries: 55.**

Department	Title	Date	No. of beneficiaries	Collaboration if any,
Chemistry	Use of Excel and chemdraw software in chemistry	17/01/2019 to 18/01/2019	55	Dr. Vikram Pandit Asst. Prof., Dept. Of Chemistry, H. V. Desai College, Pune and In-house Faculty.

**D. Hands-on training - Total Beneficiaries-57 (21 from other colleges)**

Department	Title	Date	Collaboration if any,
Chemistry	“Instrumental methods of Analysis”	31/10 2018 to 2 /11/ 2018	<ul style="list-style-type: none"> <li>• Dr. S.S.Kale, Asso. Prof., Dept. of Chemistry, Abasaheb Garware College, Pune</li> <li>• Dr. Anup Kate, Asst. Prof. Dept. of Chemistry, Abasaheb Garware College, Pune</li> <li>• Dr.Preeti Kulkarni,Asst. Prof., Department of Chemistry, Abasaheb Garware College, Pune</li> </ul>

**9. Name, Designation, Host Institute of Guest Faculty Invited:****Total Scientist/Academicians invited-07; Students benefitted – 478.**

Sr. No.	Name of the Resource person	Title of the lecture	Date	No. of Beneficiaries
1.	Dr.N.N.Bhujabal Head of Department of Chemistry, A.M. College , Hadapsar, Pune	Stereochemistry of Cyclohexane	10/08/2018	53

2.	Dr.Dilip Thube Head of Department of Chemistry, New A.C.S. College, Parner, Dist. Ahmednagar.	Inorganic chemistry for competitive examination	23/08/2018	60
3.	Dr. Shankar Thopate, Associate Prof., Department of Chemistry B.P.H.E. Ahmednagar College, Ahmednagar	Strategies for synthesis of applied organic compounds	23/08/2018	68
4.	Dr.Golak C. Mikap Ex Director, R and D, Emcure Pharmaceutical Limited, Pune	Chemical Reaction: Industrial point of view	25/08/2018	50
5	Dr.Shainaz Landage, Lecturer in Organic Chemistry , Georgia southern University, Statesboro, USA.	Research and job opportunities overseas	27/12/2018	75
6.	Dr. Balaprasad Ankamwar Department of Chemistry, SPPU, Pune	Principles of Thermodynamics	24/01/2019	75
7.	Dr. Prashant Alegaonkar Defense Institute of Advance Technology, Girinagar, Khadakwasla, Pune-25	Preparation and properties of carbon nanotubes and their applications.	19/01/2019	97

#### 10. Date of Advisory Committee Meeting: - 8<sup>th</sup> April 2019

**11. List of New Practical /Demonstrations introduced in department in the last one year:****F.Y.B.Sc.- 04; S.Y.B.Sc. -04; T.Y.B.Sc.-07; Total-15**

<b>Chemistry</b>	<b>Additional Practicals/Demonstrations</b>
F.Y.B.Sc.	1.Determination of stoichiometry of reaction between $\text{Fe}^{2+}$ and $\text{KMnO}_4$ and determine equivalent weight of $\text{KMnO}_4$ in acidic medium 2.Determination of Basicity hence equivalent weight of different acids. 3. Preparation of solution in different units of concentration 4. Synthesis of Azo dyes
S.Y.B.Sc.	1. To determine Molecular weight of Sulphur by depression in freezing method (study of colligative property) 2. Choice of best indicator in the titration between acetic acid and HCl 3. To determine the corrosion rate of a given metal strip in water, acid and alkali. 4. Calibration of the pipette, burette and volumetric flask
T.Y.B. Sc	1. Purification of water by ion exchange chromatography 2. Synthesis of Aspirin by green chemistry route 3. Photo catalysis degradation of dye from water using nano- size $\text{ZnO}$ photo catalyst 4. Synthesis of Schiff base ligand by green method. 5. Isolation of curcumin from turmeric powder 6.To determine the rate constant saponification of ester reaction 7. To determine solubility of sparingly soluble salt by using conductometer

## **DEPARTMENT OF BOTANY**

**6. List of Projects undertaken by Student, Industrial Visits by Students; Summer training in last one year.**

**A. Students Projects- 25 Project – 45 beneficiaries.**

S.N.	Name of the Student	Class	Title of the Project
1	Shreya Mane Deshmukh	F. Y. B. Sc.	Study of different types of flowers in aroma therapy – <i>Hibiscus rosa-sinensis</i> , <i>Polyanthus tuberosum</i> , <i>Rosa indica</i> , <i>Ocimum</i> , <i>Tagetes</i> etc.
2	Bilkis Nadaf	F. Y. B. Sc.	
3	Rutuja Mane	F. Y. B. Sc.	Study of phyllotaxy of plants in Maval area
4	Satyam Gupta	F. Y. B. Sc.	studies on Photosynthetic pigments of <i>Suaeda fruticosa</i>
5	Prasad Ambre	F. Y. B. Sc.	Effect of NaCl on seed germination of <i>Pisum sativum</i> and <i>Cicer Arietinum</i>
6	Nandini Wankhade	S. Y. B. Sc.	Study of morphology and ecology of Hydrophytic plants – <i>Azolla</i> , <i>Najas</i> , <i>Sagittaria</i> , <i>Nymphaea</i> , <i>Cyperus</i> .
7	Harshada Waghmare	S. Y. B. Sc.	
8	Karishma Rane	S. Y. B. Sc.	Study of medicinal plants- <i>Aloe vera</i> , <i>Azadirachta indica</i> , <i>Mentha piperata</i> and <i>Trigonella foenum-graecum</i> , <i>Ocimum sanctum</i> , <i>Calatropis procera</i> , <i>Phyllanthus emblica</i>
9	Pratiksha Ovhal	S. Y. B. Sc.	
10	Datta Walunjkar	S. Y. B. Sc.	Survey of powdery mildew in RMACS College, Akurdi
11	Sushmita Garud	S. Y. B. Sc.	Study of application of flowers in traditional Medicinal – <i>Hibiscus</i> spp., <i>Vinca rosea</i> , <i>Psidium guava</i> , <i>Lantana camera</i> , <i>Solanum melongena</i> .
12	Tanvi Salim Tasedar	S. Y. B. Sc.	Study of biodiversity of Shikrapur and Morachi chincholi
13	Swamy Chenamma Shivanad	S. Y. B. Sc.	Study of floristic diversity of Mutha river
14	Amit Popat Shirke	S. Y. B. Sc.	Tree flora of Pimpri Chinchwad area
15	Rupesh Kalekar	S. Y. B. Sc.	Micromorphology and phytochemical screening of Neeranjan fruit
16	Priya Sharma	S. Y. B. Sc.	Biopesticides from five plants – <i>Azadirachta indica</i> , <i>Moringa oleifera</i> , <i>Annona sqamosa</i> , <i>Calatropis gigantean</i> , <i>Ipomoea pupurea</i>



17	Pratik Karale	T. Y. B. Sc.	Stomatal index of plants grown along the banks of river Mula and Mutha.
18	Seema Kamble	T. Y. B. Sc.	Isolation and physiochemical characterisation of phytolectins from <i>Tamarindus indica</i>
19	Harshada Pawar	T. Y. B. Sc.	Studies on drying of various ornamental plants and their parts
20	Ankita Pandey	T. Y. B. Sc.	Dry flower technology and value addition to floriculture industry
21	Puja Jangid	T. Y. B. Sc.	Floristic studies of Bhandara mountain
22	Nikita Sawale	T. Y. B. Sc.	Use of Hydrogel in agriculture for improving soil properties
23	Jatin Singh	T. Y. B. Sc.	
24	Arjun Konkale	T. Y. B. Sc.	
25	Harshada Garud	T. Y. B. Sc.	Callus Culture of Matki Seeds & Rhizome of curcuma for enhancement of production
26	Rushikesh Jadhav	T. Y. B. Sc.	
27	Aarti Patil	T. Y. B. Sc.	
28	Snehal Gopale	T. Y. B. Sc.	
29	Aishwarya Gopale	T. Y. B. Sc.	
30	Rajashree Kokane	T. Y. B. Sc.	
31	Samiksha Patil	T. Y. B. Sc.	Effect of Na <sub>2</sub> SO <sub>4</sub> stress on two varieties of Jowar and Maize at the seedling stage
32	Abhijit Khaire	T. Y. B. Sc.	Seed germination studies of groundnut variety TPG41 under saline condition
33	Akshay Dongre	T. Y. B. Sc.	Effect of pesticides on photosynthetic pigments in leaves of agricultural crops
34	Vrushali Kate	T. Y. B. Sc.	Separation of amino acids from infected crop leaves by using paper chromatography
35	Rupali Jawalge	T. Y. B. Sc.	Conservation of Sacred grooves

**B. Industrial Visits: Total visits: 04 ; Students benefited: 218**

Department.	Place visited	Date	No. of beneficiaries
Botany	1) Visit to eco-friendly aromatic and medicinal plant nursery; Somatane, Pune	27/09/2018	28
	2) Indian Institute of tropical Meteorology, Dr. Homi Bhabha Road, Pashan, Pune-411008.	28/09/2018	30
	3) IISER, Dr. Homi Bhabha Road, Pashan, Pune-411008.	9/1/2018	30
	4) Agriculture college, Shivaji Nagar, Pune	21/1/2018	101
	Wild edible plants exhibition-Pune	8/09/218	29

**C. Winter school:****Tools and techniques in Plant Science from 26/11/2018 to 1/12/2018**

Sr. No.	Date	Techniques	Name of the Teacher
1	26/11/2018	Chromatographic techniques	Dr. Pratima Kadam
2	27/11/2018	Column Chromatography	Dr. Varsha Shriram
3	28/11/2018	Soil microorganism	Dr. Amol Sonawane
4	29/11/2018	Agarose Gel electrophoresis	Dr. Preeti Joge
5	30/11/2018	Dehydration and preservation flowers	Dr Saima Rashid
6	01/12/2018	Twin scaling in bulbous plants	Prof. Kishor Saste
7	2/12/18	Preparation of various culture media	Prof Siddharth Math

**7. Training received by Faculty from participating departments:****A. Teachers Activities- Workshops, seminars and training courses organized:**

Sr.No	Title	Date	No .of Teacher Beneficiaries
1.	Computation of green vegetation by using satellite data.	2/3/2019	18
2.	Introduction of plant tissue culture methods.	2/12/2018	22

**B. Teachers Activities- Workshops, seminars and training courses attended.**

S.N.	Name of the Teacher	Title and Place	Date
1	Dr. Varsha Shriram	Short Term Course in Mathematics for biological sciences, TC College Baramati	3/12/18 - 9/12/18
2	Dr. Pratima Kadam	Short term course in curriculum development, SPPU, Pune	22/2/2019- 28/02/2019
2	<ul style="list-style-type: none"> <li>Dr B.M Shinde</li> <li>Prof. R.B Nagare</li> <li>Dr H.B. Sonawane</li> </ul>	International Conference on “Recent advances in traditional medicinal plants and phytochemistry”,	8/2/19 - 9/2/19

**8. List of Exhibitions /Seminars/Training Courses conducted by the college:****A. Exhibition-Intercollege science exhibition and poster competition.**

Following are the participants in this event- Beneficiaries – 12; Projects- 05

Sr. No.	Name of the students	Class	Name of Projects	Name of the College
1.	Rajashri Kokane Harshada Pawar Samiksha Patil	T.Y.B.Sc	Tattoo ink as a biosensor	Prof. R.M.A.C.S college, Akurdi

2.	Vrushali kate Akshya Padvi	T.Y.B.Sc S.Y.B.SC	Design Device for identification of plant	Prof. R.M.A.C.S college, Akurdi
3.	Jatin Singh Arjun Konkale Nikita Sawale	T.Y.B.Sc	Hydrogel Agricultural Technology	Prof. R.M.A.C.S college, Akurdi
4.	Pratiksha Kamble Sagar Kamble	S.Y.B.SC	Bioethanol production	Prof. R.M.A.C.S college, Akurdi
5.	Aarti Patil Rushikesh Jadhav	T.Y.B.Sc	Self-healing material	Prof. R.M.A.C.S college, Akurdi

#### **B. Workshops for participating Departments-Total Beneficiaries-66**

<b>Department</b>	<b>Title</b>	<b>Date</b>	<b>No. of beneficiaries</b>	<b>Collaboration if any,</b>
Botany	Budding of Roses	25/08/2018	66	NIL
Botany	Computational of green vegetation by using satellite data.	02/03/2019	95	NIL

#### **C. Hands-on training. For participating departments- Total Beneficiaries -86**

<b>Department</b>	<b>Title</b>	<b>Date</b>	<b>No. of beneficiaries</b>	<b>Collaboration if any,</b>
Botany	Isolation of soil Mycorrhiza	11/08/2018	86	SPPU

**9. Name, Designation, Host Institute of Guest Faculty Invited:****Total 04 Scientist/Academicians were invited; 332 Students were benefitted**

S.N	Topic	Date	No. of beneficiaries	Class	Resource person
1	Multidisciplinary approach for standardization and evaluation of Medicinal plant resources	4/08/2018	86	FY, SY, TY. B.Sc	Dr. Anuradha Upadhye (Scientist ARI)
2	Grape breeding for disease resistance	07/08/2018	66	SY, TY BSc	Dr. Sujata Tetali (Cytogeneticist ARI)
3	Plant Nomenclature	10/08/2018	69	SY, TY BSc	Dr Milind Sardesai (Prof Botany at Department, SPPU)
4	Isolation of Soil Mycorrhiza	11/08/2018	111	FY, SY, TY BSc	Dr Mahesh Borde Asst. Prof ..Botany Department SPPU

**Guest Lectures organized: Beneficiaries -124**

S.N.	Name of the Resource person	Title of the lecture	Date	No. of Beneficiaries
1.	Rajesh Gade (Asst Prof at Lotus Business school, Punawale, Pune)	Careers in herbal technology	6/2/2019	29
2.	Iliyas Sayyed (Associate Prof. , Poona College, Pune)	Computational of green vegetation by using satellite data.	2/3/2019	95

**10. Date of Advisory Committee Meeting:** 8<sup>th</sup> April 2019

**11. List of New Practical's /Demonstrations introduced in different departments in the last one year: F.Y.B.Sc.-04; S.Y.B. Sc. -04; T.Y.B.Sc.-04: Total -12**

Class	Additional Practicals conducted class wise
F.Y.B.Sc.	<ol style="list-style-type: none"> <li>1. To study various culture techniques and serial dilution techniques</li> <li>2. Study of types of pollen grains</li> <li>3. Preparation of stains</li> <li>4. Collection of plant and preparation of Herbarium</li> </ol>
S.Y.B.Sc	<ol style="list-style-type: none"> <li>1. Callus induction using carrot root</li> <li>2. To study and water analysis by using electrical conductivity meter</li> <li>3. Separation of DNA by using Agarose Gel Electrophoresis</li> <li>4. Isolation of plasmid DNA</li> </ol>
T.Y.B.Sc	<ol style="list-style-type: none"> <li>1. Study of Representative Genera belonging to zygomycotina.</li> <li>2. Study on monochromatic light on photosynthesis</li> <li>3. Determination of Respiratory Quotient using Ganong's respirometer</li> <li>4. Indirect organogenesis by using moth bean.</li> </ol>

## **Department of physics**

## 6. List of Projects undertaken by Student, Industrial Visits by Students; Summer training in last one year.

### A. Student Projects:

The students were allotted projects on basic and applied fields of physics. This activity helped students to do what they learned in classrooms. Self-learning and peer learning was achieved through the projects undertaken by students. The DBT star college scheme was very crucial to offer this learning opportunity to the UG students. Students performed 30 projects in physics through this activity.

S.N.	Name of the student	Class	Title of the Project
1	Mahajan Kajal Pandit	TY B.Sc	To study the physical force pendulum.
2	Shaikh Faizia Mansoor	S.Y.BSc	
3	Gaykad Mayuri Rajesh.	T Y B.Sc	To study Faraday's law for free falling body.
4	Kokare Tejaswini Prakash	S.Y.BSc	
5	Marathe Akshay Vijay	T. Y. B.Sc	To design & built the Digital distance counter to measure the distance.
6.	More Sanket Ashok	S.Y.BSc	
7	Gawade Sumeet Pandurang	T. Y. B.Sc	To design & built the circuit to detect metal.
8	Patil Sairaj Hindurao	S.Y.BSc	
9	Ladaf Tahura Mehboob	T. Y. B.Sc	To study Photo-electric effect using AmrutaVirtul Lab.
10	Chavan Akshay .C.	S.Y.BSc	
11	Bhoirkar Ajay Pandhrinath	T. Y. B.Sc	To design & built Electronic Horn for car.
12.	Thikekar Dayanand Anil	S.Y.BSc	
13	Satpute Pooja Kalyani	T. Y. B.Sc	To study the refractive indices of different material & to analyze how



14	Patil Ranjit B	S.Y.BSc	refractive index changes with diameter of ring.
15	Yadav Shraddha Amarjeet	T. Y. B.Sc	To study Modulus of rigidity using torsional pendulum .
16	Chavan Mayuri Maruti	S.Y.BSc	
17	More pratiksha Babasaheb	T. Y. B.Sc	Meldes experiment to determine the frequency of tuning fork.
18	Sneha Shaji	S.Y.BSc	
19	Ranjan Shashi Prakash	T. Y. B.Sc	To design & built the circuit to measure the water level of a tank.
20	Shinde Swaraj Sunil	S.Y.BSc	
21	Bhosale Shubham Sainath	T. Y. B.Sc	To study the Fraunhofer diffraction .
22.	Mohalkar Nikhil	S.Y.BSc	
23	Hake Akshay Birmal	T. Y. B.Sc	To design electronic eye for security alarm.
24	Veedekar Ketan	S.Y.BSc	
25	Mathane Nitin Ashok	T. Y. B.Sc	To make light sensitive trigger using LDR.
26	Mane Balaji	S.Y.BSc	
27	Sarnobat Rushikesh Ramesh	T. Y. B.Sc	To study the Polarisation of light.
28	Patil Rushikesh	S.Y.BSc	
29	Wankhede Shraddha Sanjay	T. Y. B.Sc	To make a calculator in C programm .
30	Gaikwad Akshada	S.Y.BSc	
31	Urmudge Pandurang Narsing	T. Y. B.Sc	To design the circuit for Laser Security

32	Shaikh Kayyum	S.Y.BSc	
33	Desai Suraj Suresh	T. Y. B.Sc	To synthesize ZnO nanoparticle.
34	Bargule Ganesh	S.Y.BSc	
35	Birajdar Rohit Manohar	T. Y. B.Sc	Integrated circuit for metal detector system.
36	Belure Sachin'	S.Y.BSc	
37	Shah Pooja Babulal	T. Y. B.Sc	To design copper coil for deviation of light: applications in smart car.
38	Ghadge Pooja	S.Y.BSc	
39 40	Shah Raju Babulal Arote Ganesh.	T. Y. B.Sc S.Y.BSc	Automotive head light for safe driving.
41	Hajare Hrishikesh	T. Y. B.Sc	To design D.C digital voltmeter
42	Mohite Shankar	S.Y.BSc	
43	Shivkumar S.K	T. Y. B.Sc	To design fire alarm.
44	Kumbhar Santosh.	S.Y.BSc	
45	Patil Amol	T. Y. B.Sc	To design & built the circuit to measure the water level.
46	Waykar Suyash	S.Y.BSc	
47	Gujar Rohan	T. Y. B.Sc	To design the circuit for detection of smoke.
48	Garad Aniket	S.Y.BSc	
49	Basturkae Mansi	T. Y. B.Sc	To design biological battery from leaf and fruit .
50	Gaykwad Manisha	S.Y.BSc	
51	Bhanusghare Arti	T. Y. B.Sc	To study the optical properties of Tio <sub>2</sub> thin film.
52	Ranbhare Nikita	S.Y.BSc	
53	Gade Karishma	T. Y. B.Sc	Application of Ge diode to detect fire.
54	Khan Sabara	S.Y.BSc	

55	Malvadkar vijay Hansraj	T. Y. B.Sc	To design the frequency modulating transmitter.
56	Patel Lakesh	S.Y.BSc	
57	Surjuse Anshuman	T. Y. B.Sc	Preparation of Bioconcrete using Fermentation based process.
58	Boralkar Vinayak	S.Y.BSc	
59	Shinde Divya	T. Y. B.Sc	To design & built Photo sensor with control relay.
60	Potphode Mayuri.	S.Y.BSc	

**B. Industrial/Institutional Visits: Total visits: 03 ; Students benefitted: 103**

Department.	Place visited	Date	No. of beneficiaries
Physics	IITM-Pune	28/9/18	30
Physics	IISER-Pune	9/1/19	24
Physics	Science Park-Pune	25/1/19	49

**7. Training received by faculty from participating departments –**

Department	Title	Date	No. of Beneficiaries
Physics	Two Days Workshop on formation of thin Films by various deposition Techniques 1. Spin Coating, 2. Spray pyrolysis, 3. Electro deposition, 4. Hot Injection	1 - 2 March 2019	22

**8. List of Exhibitions /Seminars/Training Courses Conducted by the department:**

**A. Exhibition-**

Sr.No.	Class	Name of Student	Title of Project
1.	T.Y. BSc.	Anshuman Surjuse Arti Patil	Self-healing Material

		Rushikesh Jadhav	
2.	TY. S.Y. BSc.	Kajal Mahajan Sandeep Bhilare	Numerical Integration and calculation
3.	F.Y.BSc.	Sarika Sutar	Bending Of Light
4.	F.Y.BSc.	Pranali Patil	Wind Energy
5.	F..YBSc.	Prathama Dhumale Matin Mulla	Clap Switch Transistor
6.	F.Y.B.Voc.	Samir Dhumal Dnyaneshwari Jadhav	Door Security Alarm
7.	F.Y.B.VoC	Saurabh Shinde	Timer and moisture indicator
8.	F.Y.B.Voc.	Pooja Kate	peddle power, wind and mouse generator
9.	F.Y.B.Voc.	Amol Mandiwal	Rain alarm and Bugler alarm
10.	F.Y.B.Voc.	Shraddha panchras	Single cycle timer straight light
11.	FYBSC	Shreya Jagtap Tushar Shelkande	LDR Circuit
12.	FYBVoC	Akash wathore	Clap Switch

**C. Workshops: -Total 02; Total Beneficiaries 102**

Department	Title	Date	No. of beneficiaries	Collaboration if any,
Physics	Electronic designing for House hold appliances	14/12/18	36	B.Voc Automotive Electronics Dept. of college
Physics	LED bulb manufacturing	11 /1/ 19	66	Swa-oorja Institute Pune

**B. Hands-on training. Total Beneficiaries 107**

Department	Title	Date	No. of beneficiaries	Collaboration if any,
Physics	Mobile Repairing	21 /2 /19	107	Saraswati Education Centre Pune and Electronics Dept of the college.

**9. Name, Designation, Host Institute of Guest Faculty Invited:**

**Total 04 Scientist/Academicians were invited; 238 Students were benefitted.**

S.N	Topic	Date	No. of beneficiaries	Class	Resource person
1	Introduction to Nanomaterials	11 /8 /18	75	F.Y.B.Sc..	Dr Dipti Siddhay Asst. Prof., SPPU,Pune
2	Innovative experiments in physics	16 /8 /18	69	F.Y /S.Y. B.Sc.	Dr S.D.Aghav Asso. Prof., B.R.Gholap College,Pune
3	Photovoltaic Technology	1 /9 /18	48	S.Y. /T.Y. B.Sc.	Dr.Adinath Funde Asst. Prof., SPPU,Pune
4	Research Methodology	12 /9 /18	46	S.Y /T.Y. B.Sc.	Dr S.G Kandalkar Asso. Prof. PCCOE,Pune

**10. Date of Advisory Committee Meeting: 8<sup>th</sup> April 2019.**

**11. List of New Practicals /Demonstrations introduced in different departments in the last one year: F.Y.B.Sc.= 03; S.Y.B.Sc. =04; T.Y.B.Sc.=04**

Class	Additional Practical conducted–class wise
F.Y.B.Sc.	1) Free fall of a body. 2) To calculate Magnetic Susceptibility and to identify diapa and ferromagnetic materials 3) To verify Newton's second law of motion. 4) Online learning of Lees method to calculate the thermal conductivity. 5) Online learning of design of Kirchoff's circuit. 6) Online learning of LCR circuit. 7) Online learning of $\eta$ by flat spiral spring
S.Y.B.Sc.	1) Study of Components used in electronic circuit. 2) To determine the spring constant using computer interfaced experiment 3) To study force oscillation in simple pendulum. 4) Damped oscillator (L.C.R Circuit). 5) Online learning of Newtons ring. 6) Online learning of circuit theorem. 7) Online learning of Filter circuit
T.Y.B.Sc.	1) Study of Components in electronic circuits. 2) Determination of Potential energy curve on a Linear track. 3) Acceleration due to gravity on a Linear air track. 4) Faraday's Law of Electromagnetic Induction. 5) Online learning of $e/m$ by Thompson method. 6) Online learning of Michelson interferometer. 7) Online learning of Andersons bridge..

## 12. Details of equipment purchased in each department from DBT grant-

The details of equipment purchased in each department from DBT grant has been furnished in the previous report. Being the second year of the scheme, non-recurring grant was not received hence no purchase was made.

**13. Details of books & journals subscribed from DBT grant.****Department of Zoology**

S.No.	Title of Book	Author	No.	Accession No.
1	Text Book of Endocrinology	Radhesham	02	1100169-70
2	Objective Invertebrate Zoology	Sandhu	02	110071-72
3	Text book of Zoology	Garg A.	03	110073-75
4	Economic Zoology	Patil	01	1100176
5	Non-chordate Zoology	Goswami	01	1100177
6	An introduction to Birds	Singh	01	1100178
7	Text book oh Cytology	Sandhu	01	1100179
8	Animal Husbandry	Rao	01	1100180
9	Biosphere	Bhaskar	01	1100181
10	A Text Book of Entomology	Mathur	01	1100182
11	A text book of Enzymes	Singh	01	1100183
12	Heredity and Genetics	Bhaskar	01	1100184
13	Animal Embryology	Sandhu	01	1100185
14	An Introduction to Fishes	Singh	01	1100186
15	Text Book of Economic Zoology	Bhargav	01	1100187

**Department of Chemistry:**

S. N.	Title of the book/Journal	Author and Publisher	Qty	Accession No.
1	Orbital Interactions in Chemistry	Thomas A. Albright J.Wiley and sons, Canada	01	1100149
2	Advanced organic synthesis	Dmitry V. Liskin Penny chaloner, CRC Press, London	01	1100150

3	Concise Inorganic chemistry	J.D.Lee Wiley, New Delhi	01	1100151
4	Nanotechnology	S. Shanmugam, MJP Publisher, Chennai	01	1100152
5	Problems in inorganic chemistry	Dr. R.L.Madan, S.Chand Publisher	01	1100153

**Department of Physics**

S.N	Title of the book/Journal	Author	Qty	Accession No.
1	Nuclear Physics	Ilongavan	01	110034
2	Nuclear Physics	Chatval	01	110035
3	Classical & Quantum Physics	Bansal	01	110036
4	Quantum Physics	Balentine	01	110037
5	Biophysics	Agarwal	01	110038
6	Polymer Physics	Agarwal	01	110039
7	Thermal Physics	Agarwal	01	110040
8	Statistical Physics	Agarwal	01	110041
9	Experimental Physics	Sing	01	110042
10	Particle Physics	Agarwal	01	110043
11	Atomic & Molecular Physics	Tripathi	01	110044
12	Classical Physics	Agarwal	01	110045
13	Quantum Mechanics	Srivastava	01	110046
14	Electromagnetics	Mahapatra	03	110033



**Department of Boany**

<b>Sr. No</b>	<b>Author and Name of the book</b>	<b>Accession Number</b>	<b>Qty.</b>
1	Singh – Plant Biotechnology	100154	01
2	Gautam – Practical Botany	100156	01
3	Singh – Dictionary of Botany	100157	01
4	Gautam – Systematic Botany	100158	01
5	Tiwari – Research Methodology	100159	01
6	Pahare – Forest Ecology & Economic	100160	01
7	Koul – Plant Ecology	100161	01
8	Meena – Intro to Plant Pathology	100162	01
9	Gonsalves – A TB of Economic Botany	100163	01
10	Kumar – Plant Breeding & Propagation	100164	01
11	Singh – Plant Anatomy, Physiology	100165	01
12	Ranjalkar – Medicinal Plant	100166	01
13	Nasim- TB of Plant Anatomy	100167	01
14	Kadam – Research Methodology	100168	01
15	Munde – Economic Botany	100169	01

**14. Qualitative improvement due to DBT support please highlight (5 salient lines)**

- ✓ Increased student input at UG level and progression to higher education.
- ✓ Augmentation of laboratory equipment and increased student access to the labs.
- ✓ Books purchased under DBT Grant strengthened the Departmental Libraries.

- ✓ Regular excursions, extension, Outreach, guest lectures, Projects, Hands-on and workshops in each department by inviting eminent scientist from reputed scientific institutes regularly by participating departments.
- ✓ Teachers participated in faculty development activities, applied for the research projects, published their research works and organization of an International Conference involving 10 resource person from six countries including USA, UK and Japan and 200 participants from various colleges of India are few significant achievements of the DBT Star College Scheme.

#### **15. Problem faced if any in implementation of the program and utilization of the DBT grant.**

The Scheme has indeed been a boon for the students of the UG level, there were no major problems faced for the implementation of the program.

#### **Departmental Accomplishments through DBT Star College Scheme:**

All participating departments, students and the college were greatly benefitted by the DBT Star College Scheme. The Learner centric activities organized by the departments were well complemented by the co-curricular activities which proved to be a value addition to all the students. Few Prominent activities carried by the participating departments are mentioned below-

##### **A. Outreach and extension activity:**

Through the various activities conducted for the students under the DBT Star college scheme, the working potential of the students has seen to be enhanced. The lectures and visits encouraged students to carry out outreach and extension activities. The knowledge thus obtained was shared with the society. Through these activities students were given exposure and platform to show their skill and get some real life experiences for their career development. These activities include-

##### **1. Drawing competition on Environment awareness at Nearby School:**

On the occasion of Ozone Day Department of Zoology in association of **Indian Institute of Tropical meteorology (IITM) Pashan, Pune**, organized a drawing competition on topics sensitizing students on Environment Awareness issues at Shri Mhalsakant school and Junior college, Akurdi-Pune. **210 school students** actively participated in this competition and were made aware of the various issues related to environment and conservation. These students and the

participating school teachers learnt about the DBT and were also benefited through the DBT scheme as popular talks were organized for them too.

## **2. Vitamin A deficiency awareness camp:**

In the month of July, the Department of Zoology along with the T.Y.B.Sc. students organized a one-day awareness camp at Shri Mhalsakant School and Junior college for the School children. Health checkup of school children was carried out by the college students. Lectures in an interactive manner was delivered by the teacher and students using pictures and models to make the kids aware of health, nutrition and eating habits. During this activity the UG students of the participating department developed skill and confidence in studying through survey based methods. The students found deficient in Vitamin A were noted and the information was handed over to the school authorities for further process. The knowledge they received through the guest lectures and interactions helped them to carry out this activity smoothly.

## **3. Environment Awareness Rally:**

All the UG and PG students of the department participated in a rally on creating awareness about the environmental issues through various slogan and street plays. A long rally through the residential area of Akurdi spanning over 4 kms was organized and students actively participated in this activity. Students were sensitized towards their social responsibilities and readily agreed to continue the same in their residential places, societies and public places around.

## **4. Waste management and Awareness of medicinal plants:**

The knowledge obtained through the various DBT sponsored activities specially related environmental issues was practically brought into practice by the students of Botany department in recycling the kitchen waste. These students visited a big residential society in a nearby locality and set up kitchen waste composting unit where the regular kitchen waste of the society can be converted into a compost and be used for the society garden.

The same group of students also identified the medicinal plants in the nearby area and also gifted few saplings of medicinal plants to the society and discussed the importance of these plants.

Name of activity	Dates	No. of participants	Activities carried out
Kitchen waste composting	08/08/2018	42	Kitchen waste composting training to Gangadham Society Akurdi
Medicinal plant Awareness	08/08/2018	42	Distribution & information of commonly used medicinal plants to Gangadham Society Akurdi.

## 5. Energy Survey

The students of Physics department carried out an energy survey on 15/12/2018 at Village Ovale Tal: Maval Dist Pune. In this survey questionnaire designed by the students about energy usage were used. The energy utilized by villagers was measured in their presence to create awareness of saving energy. They were guided by the students on how to save electricity. The analyzed survey report was shared with the villagers and created awareness among them about conservation and consumption of energy. The benefits of the solar energy were also demonstrated.

### B. Innovative activities:

#### 1. Plant propagation by budding-

Propagation of plants through budding of various plants was one of the innovative practice learnt by the students through a special workshop under the DBT scheme, they were motivated to raise the saplings and on an experimental level, which was further scaled up to develop a nursery where the saplings of plants like *Pentas*, *Chrysanthemum*, *Murraya*, *Aster*, *Cymbopogon* and *Ocimum* are available for students. The saplings developed in our garden are used to felicitate the guests on the campus. This DBT sponsored activity helped to develop the entrepreneurship skills amongst the students.

#### 2. Spider Museum Preparation:

The UG students of the department of Zoology collected, identified and preserved the various spider species from the parts of Western Ghats confined to Pune region. This activity was implemented due to the visit to Zoological Survey of India, Pune where students interacted with the eminent taxonomist and continued to extend the museum making activity following the fish museum preparation in the last year.

A total of 94 species of spiders were collected identifies and preserved through this activity. It is indeed a unique activity to be carried out through the DBT scheme by the UG students.

### 3. Interdisciplinary Activity:

**Moodle** is used for faculties in the departments for distributing course material like **notes, power point presentations, University Question Papers, URL of Video Lectures and e-Books, question bank** etc. to the students. The Physics and computer science faculty conducted a special session for the science students of the participating departments to make them aware about this learning resource.

All the participating departments have started their google classroom activity to make the learning material readily available to all the students and to create a good learning group of the students.

### 4. Soil Analysis:

The students of Chemistry department visited the farms in the nearby area, discussed the soil related issues with the farmers and collected some soil samples for chemical analysis of the soil. These samples were brought to the laboratory for the physico-chemical analysis like, colour, texture, pH, Salinity, Carbonate content, Nitrate content etc. The results obtained were initially discussed with the in-house experts and then shared with the farmers and suggestions were given to them. Measures to restrict the deterioration of the soil quality were also shared.

### 5. Career guidance by PG students:

The previous year pass outs of the department of Botany, having experienced the benefits of the DBT scheme, delivered a talk to the current students on importance of the DBT sponsored activities and its usefulness for higher education, on 29/9/2018. This activity was appreciated by the UG students and through this activity Peer learning was practiced.

Sr.No.	Name of Students	Date	Present status
1	Reshama Kadam	29/09/2018	M.Sc. -I
2	Pradnya Bansode	29/09/2018	M.Sc. -I
3	Mrunalini Waghmare	29/09/2018	M.Sc. -I
4	Sheetal Gudase	29/09/2018	M.Sc. -I

**6. Special lectures on Nobel Prize in Science:**

The participating departments have started an unique activity to organize interactive lectures on the topics and the Scientist who have received the Nobel prizes in the fields of Physics, Physiology or Medicine and Chemistry.

**C. Student Participation in S.P. Pune University's Research Competition- AVISHKAR-**

**2018-19-**

35 students participated and were selected in the Zonal level.

S. N.	Name of Students	Class	Title Of Project	Guide
1	Akshay Padvi and Vrushali Kate	SYBSc	Designing A Device For Biodiversity Identification	Dr. Varsha Sriram
2	Pratik Patil and Martanda Athavale	FYBSc	Preparation Of Natural Dyes From Plants And Plant Parts	Dr. Ranjeeta Chatterjee
3	Prajakta Awesarmol and Prajakta Sutar	SYBSc	Cotton Pest Control By Simple Light Trap Device	Dr. A. A. Shaikh
4	Mayur Jagtap and Shubham Rasal	SYBSc	Extraction Of Omega-3 Fatty Acid From Fish Wastes	Dr. Ranjeeta Chatterjee
5	Rupesh Kalekar and Datta Walunjkar	SYBSc	Impact Of Cypermethrine On Cattle Ectoparasites	Dr. A. A. Shaikh
6	Amit Shirke and Shahid Khan	SYBSc	Formulation For Biodegradable Biplastic Production From Agricultural Wates	Dr. Ranjeeta Chatterjee
7	Sonali Yadav and Madhuri Phadtare	SYBSc	Medicinal Effect Of Leaves And Gum Of Moringa	Prof. Bithika Baidya
8	Priya Sharma and Swami Chinnamma	SYBSc	Evaluation Of Orange Peel Extract <i>Citrus Sinensis</i> (L) As A Source Of Repellent, Toxicant, And Protectant Against <i>Aedes Aegypti</i>	Prof. Pallavi Takawane
9	Aditya Auti and Sagar Kamble	SYBSc	Preparation Of Natural Sweetner As Sugar Substitute For Diabetic Patients	Dr. Ranjeeta Chatterjee
10	Rutuja Adsul and Mangal Tambe	SYBSc	Production Of Lactic Acid From Agricultural Wastes	Prof. Pallavi Takawane
11	Pratiksha Kamble and Aishwarya Kalbhor	SYBSc	Production Of Bioethanol From Agricultural And Food Wastes	Prof. Bithika Baidya
12	Mahesh Kshirsagar and Shubham	FYBSc	Extraction Of Keratin And Keratinoids From Poultry Wastes And Feathers	Dr. Ranjeeta Chatterjee
13	Shubham Shelke, Sarvesh Salkar	B.Voc	Cauliflower Leaf Chutney	Prof. G. Vijayalakshmi

14	Hrishikesh Kshirsagar and Pratibha Shelke	B.Voc	Modified Jam	Prof. Rachna Koli
15	Shweta Ajay Yelpur and Amruta Shikhare	B.Voc	Edible Cups	Prof. G. Vijayalakshmi
16	Mahajan Dipak, Bansode Sandip, Bhosale Mayur	SYBSc	Arbuscular Mycorrhizal (Am) Fungi As An Alleviator To Tomato Plants Against Salt Stress	Dr. Sonawane HB and Prof. Math SK
17	Satyam Gupta, Sunil Shirvi	FYBSc	Impact Of Datura Extract On Cattle Ectoparasites	Prof. Akash Bagade

**D. Awards received by teachers:**

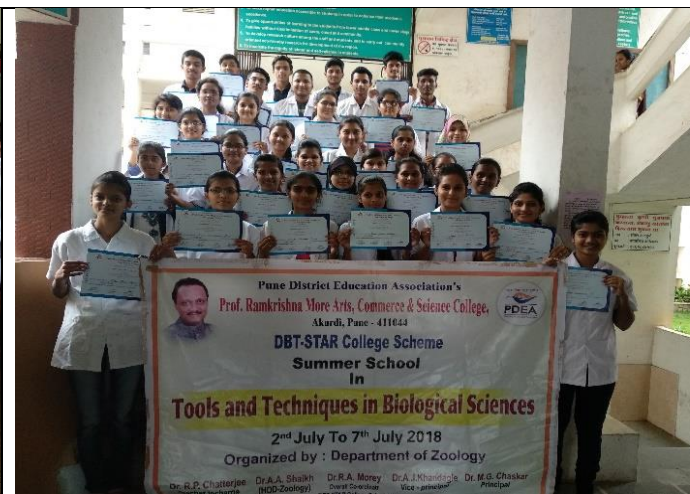
S.N.	Name	Award/ Achievement details	Date
1.	Dr. Nisha Sharma	Selected as the UGC <b>Dr. D. S. Kothari Post-Doctoral fellow (PDF)</b>	6 February 2019
2.	Dr. Saima Mir	Studies on venation skeleton preparation and preservation of different families of leaves for dry flower industry, Funded by DST- Women Scientist Scheme (WoS- B) for Rs. 18.98.000	6 Sept. 2018
3	Dr. V.D.Shriram	Optimal acetoxychavicol-acetate (ACA) production in Alpinia galanga hairy roots via gamma radiation and scale-up, funded for Rs. 18,10,000/- by <b>BRNS, DAE, Trombay, Mumbai</b>	Ongoing major project.
3.	Dr. S. P. Rasale and Dr. K. M. Gadave	Recognized as PG and M. Phil. Chemistry research guide by Savitribai Phule Pune University	17/07/2018
4	Pallavi Takawane	Selected for <b>State level competition</b> held at Gondwana University, Gadchiroli,	15 <sup>th</sup> Jan to 18 <sup>th</sup> Jan 2019
5	Prof. Ms. Kanchan M. Joshi	Presented research project on “Sewage Water plant on Mutha River of Pune” and has been Selected for <b>State level competition</b> held at Gondwana University, Gadchiroli,	15-18 January 2019



## **PHOTO GALLERY**



Summer School by Department of Zoology



Sumer School : Certificate Distribution



Environmental Rally 28 July 2018



Dr.Ghaskadbi, CSIR scientist interacting with students



Dr. Souche, NCCS-Pune delivering a talk



Dr. Souche, NCCS-Pune delivering a talk





Vermicomposting by Students



Lecture at IITM-Pune



Visit to IITM - Pune



Visit to Katraj Dairy 27 Sept.2018



Visit to Rajeev Gandhi Zoological Park -Pune



Visit to IISER-Pune





Lecture by Dr.Vijay Nema, Scientist NARI-Pune



Teacher Training Programme



Soil sample collection for Soil Analysis



Soil sample collection for Soil Analysis



Student exhibited model in PCMC Garden



Energy Survey





Molecular biology Techniques workshop



MBT: Bioinformatics Workshop



MBT: Certificate Distribution



Foldscope Workshop



Students preparing foldscope:



Histology Workshop





Drawings by school students on Ozone Day



Drawing competition on Environmental issues.



Visit t NARI Pune



Workshop on Plant budding and grafting.



Science Exhibition



Workshop on Vermicomposting.





Workshop on electronic circuit designing.



Hands on training on mobile repairing



Guest Lecture on Research Methodology



Workshop on LED bulb manufacturing



Visit to Science Park



Visit to Waste Water Treatment plant





Distribution of Medicinal Plants in Hou.Soc.



Preparation of the beds for growing rose plants



Maintaining the plants grown by budding



Algal collection at Diveagar-Coast



Visit to IITM-Importance of tree rings