

Department of Biotechnology

2020-21

Annual Progress Report supported under Star College Scheme

(Kindly note that the annual report from Point 6 to 10, should not be more than 5 A4 size sheets, with fontsize 12pt and line spacing 1.5)

1. Name of the College: Prof. Ramkrishna More Arts, Commerce and Science College- Akurdi- Pune, Maharashtra.
2. Name of Coordinator, designation, Address, Phone nos.- Dr. Rashmi Morey, Asso. Professor
Department of Zoology, 9373322221
3. Assessment duration: 01/04/2020 to 31/03/2021 Duration in years: One
4. Details of Departments Supported-

Sl No	Name of the Department	Courses (B.Sc./M.Sc./PG Diploma, certificate etc) offered	Regular Faculty members	
			With Ph.D.	Without Ph.D.
			Total = 28	
1	Zoology	B.Sc.; M.Sc.; M.Phil.; Ph.D.; Certificate Course in Medical Laboratory Techniques.	04	02
2	Chemistry	B.Sc.; M.Sc.; M.Phil.; Ph.D.; Certificate Course in Pharmaceutical Analysis.	06	03
3	Botany	B.Sc.; M.Sc.; M.Phil.; Ph.D.; Certificate Course in Plant Tissue Culture	03	03
4	Physics	B.Sc.; M.Sc.; M.Phil.; Certificate Course in Mobile Repairing.	02	05

5. Number & Date of Advisory committee meeting: Will be organized shortly.
6. Qualitative improvements due to DBT support. Please highlight 5 salient points (within 500 words).

Substantial qualitative improvement has been seen through these three years as a result of the DBT support.

- The staff interaction with renowned personalities during the DBT support years led to publications in highly reputed journals published by Taylor and Francis, Wiley, Springer, Elsevier etc. and have applied for a patent.
 - Increased hands-on exposure and training sessions to the students, which was missing in the pre support years, developed their interest towards basic science and experienced conceptual learning and increased the access to the various laboratories and library. This has led to preparation of Spider museum, fish museum, nursery development, vermicomposting, LED bulbs, circuit boards, soil insect trapping unit and sensors to detect moisture, light and temperature.
 - The Undergraduate students carried out 279 research projects and additional practicals were performed to bridge the skill gaps, this has created interest about basic science amongst the students has been reflected by the significant increase in progression to higher education.
 - The overall impact of the DBT support is well reflected through three gold medals in the University examinations in year, initiation of new subjects like Mathematics and Computer Applications at Postgraduate level, Women Scientist award from DST, DS Kothari fellowship, DST Inspire camp, B. Voc. degree program and the prestigious **DBT STAR STATUS**.
7. Any Novel aspect introduced or planning to introduce during the Scheme duration.
We plan to take up the following activities to be added to the existing ones in a very effective manner.

A Learning Centre for Basic Sciences to be started for the School and College Students in and around Pune district. Our College is located at the fringe of the Pune city and have good access to the nearby rural areas where underprivileged students can be facilitated.

Training activities specially for the early career teachers and the Jr. College teachers will be organized on all science subjects with Hands-on exposure sessions at the laboratories.

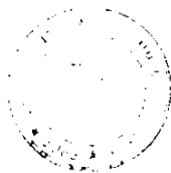
8. **Key performance indicators**


S. no	Indicator	Pre-support (2019-20)								During /After Support (2020-21)								Remarks
1	No. of students admitted	Total = 498								Total = 510								Increase in strength
		M= 232				F= 266				M=216				F=294				
		SC	ST	OB	G	S	ST	OB	G	SC	ST	OB	G	SC	ST	OB	G	
		C		C		C		C		C		C		C		C		
		26	04	70	132	43	06	59	158	24	12	65	115	67	06	83	138	
2	No. of students passing out (%) Students Admitted/passing out (pass %)	80.52 %								Not applicable , exams not yet declared.								Final Sem. exams to be conducted by the University
3	Drop-out rates	0.57%								0.51%								
4	No. of students opting for MSc	120								92								Due to COVID students preferred jobs
5	Average marks	52%								55%								
6	No. of hands-on experiments being conducted	25								Will be conducted when students return to the campus after the lockdown is lifted up.								
7	No. of new experiments introduced	Zoology-04 Chemistry- 04 Botany. 05 Physics. 03 Total= 16								Zoology- 04 Chemistry- 12 Botany- 05 Physics- 02 Total- 23								Being conducted online.
8	Publications (scopus indexed) /patents, if any.	13								27 01 patent received + 1 applied								
9	Training received by faculty	14								45								Online mode
10	Exhibitions/seminars /training courses conducted	03 10								06 12								Online mode

11	Books/journals subscribed from Grants	39	Will be purchased in this financial year.	Grants received in April 21, In process.
12	Outreach activities (Popular lectures)	22	08	Online mode
13	Colleges mentored to apply for DBT Star College grants	02	02	
14	Invited lectures	29	17	Online Mode

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


OVERALL CO-ORDINATOR
DBT-STAR COLLEGE SCHEME
 Prof. Ramkrishna More Arts, Commerce &
 Science College, Akurdi, Pune-411 044.
Course Coordinator
(With Seal)




PRINCIPAL
 Prof. Ramkrishna More Arts, Commerce &
 Science College, Akurdi, Pune-411 044.
Head of the Institution
(With Seal)

Annexure I – Proofs for point no 6 to 14 of key performance indicators

In the light of COVID-19 situation around and its huge impact specially on Pune- Maharashtra, looking at the safety of the students and the directives and regulations of the State Govt.of Maharashtra, the University of Pune and the local authorities, Online teaching was inevitable. All the activities conducted during the year 2020-21 were through online mode. As the conditions become normal we shall have the academic activities face to face.

Point No 6: No. of hands-on experiments being conducted-

Hands –on training/experiments are not yet conducted due to lockdown situation, and colleges are still not open for students. However, we shall give sufficient Hands-on experiments as the situation normalizes. Demonstration experiments to some extents have been conducted through online mode.

Point No 7: No. of new experiments introduced:

Zoology

F.Y. B.Sc.

1. Paper Chromatography

SY. B.Sc.-

2. Preparation of Polytene Chromosomes

3. Separation of Amino acids by Thin layer chromatography

T.Y. B.Sc.

4. Estrous cycle in rat.

Chemistry

F.Y. B.Sc.

1. Determination of stoichiometry of reaction between Fe^{2+} and KMnO_4 and determine equivalent weight of KMnO_4 in acidic medium.

2. Determination of Basicity hence equivalent weight of different acids

3. Synthesis of Azo dyes

S.Y. B.Sc.

4. Choice of best indicator in the titration between acetic acid and HCl

5. To determine the corrosion rate of a given metal strip in water, acid and alkali

T.Y. B.Sc.

6. Purification of water by ion exchange chromatography

7. Synthesis of Aspirin by green chemistry route

8. Photo catalysis degradation of dye from water using nano-size ZnO photo catalyst

9. Synthesis of Schiff base ligand by green method

10. Isolation of curcumin from turmeric powder

11. To determine the rate constant saponification of ester reaction

12. To determine solubility of sparingly soluble salt by using conductometer

Botany

1. To study the structure of Stomata

2. Estimation of Reducing Sugar (glucose) by Spectrometric Method

3. Separation techniques for phyto-molecules

4. Micropropagation

5. Introduction to column chromatography

Physics

1. To find acceleration due to gravity using Kater's Pendulum

2. Study of MS-excel

Point No 8: Publications (Scopus indexed) /patents, if any-

Zoology:

1. Antifungal Potential of *Parthenium hysterophorus*, *Achyranthes aspera* and *Catharanthus roseus* against *Aspergillus sp.*, *Candida sp.* and *Penicillium sp.* of Aquarium Fish. Vishad Waghmare, Abhay J Khandagle and Rashmi Morey, Egypt. Acad. J. Biolog. Sci., 12(1): 1- 8 (2020) ISSN: 2090 – 0759
2. Bioactivity of Plant Essential Oil against Potato Tuber Moth, *Phthorimaea operculella* Zeller (Lepidoptera: Gelechiidae). R. A. Morey and A.J. Khandagle, Egypt. Acad. J. Biolog. Sci., 13(2):51-56 (2020) ISSN 1687- 8809
3. Effect of Plant oils on biochemical parameters of Potato Tuber Moth, *Phthorimaea operculella* Morey Rashmi, International Journal of Entomology Research ISSN: 2455-4758; Volume 5; Issue 2; 2020; Page No. 38-41
4. Silver Nanoparticles of *Eucalyptis grandis* as A Possible Insecticide Against Mosquito Vectors. Abhay Khandagle and Rashmi Morey Egypt. Acad. J. Biolog. Sci., 13(1):173-176 (2020), ISSN 1687-8809
5. House fly control using natural products as amylase inhibitors Rashmi Morey, Abhay Khandagle, International Journal of Entomology Research ISSN: 2455-4758; Volume 5; Issue 2; 2020; Page No. 42-45.

Chemistry:

1. A transition metal-free cascade reaction using heterogeneous Tin (IV) oxide catalysed and iodine promoted synthesis of 3-arylimidazo [1,2-a] pyridines. Nirajkumar H. Jadhav, Sachin S. Sakate , Dnyaneshwar R. Shinde, Manohar G. Chaskar, Ramdas A. Pawar Tetrahedron Letters, Vol. 61, (34), 2020, 152250. Publisher- Elsevier, (ISSN No.- 004-4039), Impact Factor- 2.275
2. Synthesis, structural and electrical conduction of some dual doped semiconductor oxides nanoparticles for photocatalytic degradation of Victoria Blue-B and Brilliant yellow under solar light irradiation. Neeta Karale, A.K. Nikumbh; M.B. Khanvilkar; P.A. Nagawade; R.A. Pawar; D.V. Nighot; S.B. Misal; G.S. Gugale J. Material Science: Materials in electronics, 32, 2021, 4998-5034. Publisher- Springer, (ISSN No.-0957-4522), Impact Factor- 2.220
3. Two- and three-dimensional zinc oxide nanostructures and its photocatalytic dye degradation performance study. Vivekanand Jawale, Gulab Gugale, Manohar Chaskar, Shivaji Pandit, Ramdas Pawar, Shivani Suryawanshi, Vikram Pandit, Govind Umarji & Sudhir Arbuji. Published on 05 April 2021 in Journal of Materials Research (2021). Publisher- Springer Nature, (ISSN No.-0884- 2914), Impact Factor- 2.502
4. Electrical and Magnetic Properties of Cd₁-XFe₂- XCoxBi_{0.3}O₄ Nanoparticles Synthesized by Chemical Coprecipitation Technique. G. S. Gugale , V. U. Pandit , D. V. Nighot , R. A. Pawar , V. S. Jawale , M. B. Khanvilkar , A. K. Nikumbh. Int. J. of All Research Education and Scientific Methods (IJARESM), 9(3), 2021, 125-134. ISSN: 2455-6211, online, UGC certified, open access, peer-reviewed
5. Application of N-Aryl Ethanolamine's as N, O-Ligand in Nickel (II)-Catalysed Carbon –Carbon Bond Formation in Heck Reactions. Dattatraya S Bhange, Rahul B Sonwane, Nishant K Rasal & Sangeeta V Jagtap. Published on 7-9-2020. Chemistry Select 2020, 5 (33), 10387-10390. Wiley Online Library
6. Effect of dye absorption time on the performance of a novel 2-HNDBA sensitized ZnO photo anode-based dye-sensitized solar cell. S. S. Rakhunde, K M Gadave, D R Shinde and P K Bhujbal. Engineered Science 12, 117-124, 2020
7. Multifunctional characteristics of polypyrrole-zinc oxide (PPy-ZnO) nanocomposite: Field emission investigations and gas sensing application. Kashmira Harpale, Pankaj Kolhe, Prashant Bankar, Ruchita Khare, Sandip Patil, Namita Maiti, M.G. Chaskar, Mahendra A. More, Kishor M. Sonawane.

Synthetic Metals, Volume 269, 2020, 116542. P 09-09-2020

8. Hypoglycaemic and anticataract activity of crude exopolysaccharides of medicinal mushroom *Phellinus badius* on streptozotocin-induced diabetic rats and goat eye lenses respectively. Hiralal Sonawane, Sagar Arya, Vikram Ghole, Kishori Apte, Deepak Shelke, Manohar Chaskar. Bioactive Carbohydrates and Dietary Fibre, 24, 100241, 2020. October 2020
9. Cu/SnO₂ xerogels: a novel epoxide derived nanomaterial as formaldehyde gas sensor. Nagesh L Myadam, Digambar Y Nadargi, Jyoti D Nadargi, Manohar G Chaskar. Journal of Sol-Gel Science and Technology, 96(1), 56-66. 2020. October 2020
10. Ni/SnO₂ xerogels via epoxide chemistry: potential candidate for H₂S gas sensing application. Myadam N.L., Nadargi D.Y., Nadargi J.D. and M. G. Chaskar. Journal of Porous Materials 28(76) 2021. February 2021
11. A facile approach of developing Al/SnO₂ xerogels via epoxide assisted gelation: A highly versatile route for formaldehyde gas sensors. Nagesh L. Myadam, Digambar Y. Nadargi, Jyoti D. Gurav Nadargi, Faiyyaj I. Shaikh, Sharad S. Suryavanshi, Manohar G. Chaskar. Inorganic Chemistry Communications, Volume 116, 2020, 107901. 21-03-2020
12. Biogenic titanium nanoparticles (TiO₂NPs) from *Trichoderma citrinoviride* extract: synthesis, characterization and antibacterial activity against extremely drug-resistant *Pseudomonas aeruginosa*. Sagar Arya, Hiralal Sonawane, Siddharam Math, Popat Tambade, Manohar Chaskar & Dnyaneshwar Shinde. International Nano Letters volume 11, 35–42 (2021)
13. Isolation of Steroidal Compounds from Plant *Tribulus terrestris*. Sagar A Nalawade, Manisha S Badhe, Manohar G Chaskar, Shirish S Pingale. European Journal of Medicinal Plants, 2020, 57-64. December 2020
14. Naphthoquinones and their derivatives: Emerging trends in combating microbial pathogens. Nishigandha S. Mone, Srushti A. Bhagwat, Deepansh Sharma, Manohar Chaskar, Rajendra H. Patil, Paolo Zamboni, Neelu N. Nawani and Surekha K. Satpute. Coatings, Vol 11 (4), 2021, 434

Botany: Dr. P. S. Kadam

1. Influence of NaCl salinity of Activity of Glutamine Synthetase (GS) and GDH in the leaved of *Crotalaria L* species, IJMER ISSN: 2277-7881; IC Value-5.16, Peer reviewed Vol-9, Issue-4(1) pp 133-138, April 2020.
2. Effect of Na₂SO₄ salinity stress on germination studies of Sorghum cultivar Phulemavali and Maize Cultivar, Karveer, IJMER ISSN: 2277-7881; IC Value-5.16, Peer reviewed Vol-9, Issue-4(10) pp 24-29, April 2020.
3. Effect of biologically active compounds of *Cucumis melo* on Mosquito Species *Aedes aegypti*., IJCRT.org ISSN: 2320-2842; IC Value-5.16, Peer reviewed Vol-9, Issue-4(10) pp 3706-3709, February 2021.
4. Biochemical analysis of *Suaeda fruticosa* in Maharashtra., IJMER ISSN: 2277-7881; IC Value-5.16, Peer reviewed Vol-10, Issue-1(4) pp 118-120, January 2021.

Dr. Varsha Shiram

1. Biotic elicitors enhance diosgenin production in 3 *Helicteres isora* L. suspension cultures via up-regulation 4 of CAS and HMGR genes. Physiology and Molecular Biology of Plants; 26(3):593-604. doi: 10.1007/s12298-020-00774-6. Mar 2020 Impact Factor: 2.005 (2019) ISSN 0974-0430
2. Nano-Boehmite Induced Oxidative and Nitrosative Stress Responses in *Vigna radiata* L. Journal of Plant Growth Regulation, 1st Feb 2021

Dr H.B Sonawane

1. Hypoglycemic and anticataract activity of crude exopolysaccharides of medicinal mushroom *Phellinus badius* on streptozotocin-induced diabetic rats and goat eye lenses respectively.
2. Biogenic titanium nanoparticles (TiO₂NPs) from *Trichoderma citrinoviride* extract: synthesis, characterization and antibacterial activity against extremely drug-resistant *Pseudomonas aeruginosa*.

3. Sonawane HB, Borde MY, Nikalje GC, Terkar A, Math SK. HR-LC-MS based metabolic profiling of *Fusarium solani* a fungal endophyte associated with *Avicennia officinalis*. Current Research in Environmental & Applied Mycology (Journal of Fungal Biology) 2020; 10(1), 262– 273, DOI: 10.5943/CREAM/10/1/25.
4. Siddharam Math, Hiralal Sonawane, Vilas Patil, Sagar Arya & Avinash Ade. Plant resistance strategies against the viral pathogens. Ecology, Environment and Conservation 2020; 26(4), 1716-1720.
5. Sagar Arya, Hiralal Sonawane, Siddharam Math, Popat Tambade, Manohar Chaskar & Dnyaneshwar Shinde. Biogenic titanium nanoparticles (TiO₂NPs) from *Trichoderma citrinoviride* extract: synthesis, characterization and antibacterial activity against extremely drug-resistant *Pseudomonas aeruginosa*. International Nano Letters 2020. DOI: <https://doi.org/10.1007/s40089-020-00320-y>
- Mrs. K.S Sawant
1. “Effect of PEG-6000 induced water stress on phytochemicals in wheat cultivars (*Triticum aestivum* L.) Reviewed and accepted for the book ‘Applied Research in Botany’.
2. Participated & successfully completed E short term course(Teaching, Learning and evaluation in Botany) from 12/05/2020 to 17/05/2020 with ‘A’ grade

Patent: A novel mushroom based additive for poultry and animal feed for enhancing the growth and health, 25 May 2015, Patent No: 359025

Point No.9: Training received by faculty-

Zoology-

Dr.Abhay Khandagle-

1. ONLINE Workshop on Interactive E-Content Development jointly organized by Prof.Ramkrishna More college and Savitribai Phule Pune University, Pune on 16th June 2020;
2. International Webinar on ‘Taxonomy and Forensic Entomology’ organized by Department of Zoology, Sant Gadge Baba Amravati University, Amravati on 31st May, 2020.
3. “Modern Technologies in Life Sciences” organized by the Department of Life Science in association with Research & Development Cell on 28 and 29th May – 2020 Mass college of arts and science (Affiliated to Bharathidasan University, Trichy-24) Chennai Salai, Kallapuliur Village, Kumbakonam
4. “Analysis of Scientific Publications for enhanced visibility” Mizoram University Aizawl, India Under UGC STRIDE Program, 29th May, 2020
5. “Learner Differences and Different Learning Needs” on May 30, 2020. SMT P.M.Joshi Women’s college.
6. Workshop on Online Teaching Tools organized by IQAC and faculty of Science, Shivaji Arts commerce and S. Kadam Science college, Gadhingalaj on 9th and 10th June 2020.
7. Experiential, Joyful and innovative teaching through implementation of Zero investment innovative ideas organised by Sri Aurobindo Society on 2nd March 2020
8. Workshop on Zoology restructured syllabus on 29th June 2020.
9. Worked as resource person at S.M. Joshi college delivered lecture on role of Zoology in medical sciences on 2nd Feb. 2021
10. Completed online international workshop (FDP) organized by Deen Dayal Upadhyaya College, University of Delhi on Intellectual property rights during 9-13 Feb. 2021

Dr.R.A.Morey-

11. Learning Outcome Base Credit Curriculum Framework-In Zoology” organized by Zoology Department, Late Ku. Durga K. Banmru Science College Lonar, Dist Buldhana on June 5, 2020.

12. “Modern Technologies in Life Sciences” organized by the Department of Life Science in association with Research & Development Cell on 28 and 29th May – 2020 organised by MASS COLLEGE OF ARTS AND SCIENCE, Affiliated to Bharathidasan University, Trichy-24

Dr. R. P. Chatterjee

13. Refresher course in Life science at Rashtrasant Tukadoji Maharaj University, Nagpur, during 24-8-20-5-09 -2020.

Chemistry-

1. Dr.R.A.Pawar “Basic fundamentals of spectroscopy, applications of UV and FTIR spectroscopy and accessories”. Held on 28th May 2020 organized by K.M.C. College, Khopoli
2. Dr.R.A.Pawar Five days online faculty development programme from 30th may 2020 to 3rd June 2020 on the topic “Evolution from offline to online teaching”. Organized by Satish Pradhan Dnyanasadhana College, Thane

Dr. K. M. Gadave

3. Five days training for college teachers on “Recent Advances in Inorganic Chemistry”. Organized by Department of Chemistry, School of physical science and Pandit Madan Mohan Malaviya National mission on teachers and teaching School of Education, Central University of Kerala, Kasaragod from 05-03-2021 to 09-03-2021
4. A workshop on “S.Y.B.Sc. Chemistry Revised syllabus (CBCS-2020)”. Organized by Department of Chemistry, New Arts, Commerce and Science College, Parner , Dist. Ahmednagar , Maharashtra, India. On Wednesday, 26 August 2020.
5. One-week online National Faculty Development program on “E-contents and ICT tools for innovative and effective teaching and learning process”. Organized by Roorkee College of Management and computer Applications, Roorkee Uttarakhand from 8 August to 14 august 2020
6. “Use of modern Technology in daily Teaching – The need of the hour”. Organized by IQAC, Vaishnavi Mahavidyalaya, Wadwani, Dist. Beed, Maharashtra, India. On 29 May 2020
7. “Laboratory Safety Practices” held on 31st May 2020 organized by Dept. of Chemistry, SIES College of Arts, Science and Commerce, Sion (west), Mumbai-400022
8. UGC (Paramarsh) online FDP on “ICT in teaching and evaluation” organized by MSP Mandal’s Shri Shivaji College. Parbhani, Maharashtra During 13th July to 18th July 2020
9. One week FDP on “Modern Teaching, Evaluation and Research Methods” under UGC Scheme, Stride component –I, Organized by Vinayakrao Patil Mahavidyalaya Vaijapur, Dist- Aurangabad. , from 2nd June to 7th June 2020.
10. “Google Apps for Education and Moodle “Organized by IQAC and Dept. of Commerce, Rajaram College, Kolhapur held on 2nd and 3rd July 2020

Mr. Bhange D.S.

11. NPTEL online Certification of 12-week course successfully completed on “Reagents in organic synthesis” organized by Centre for educational technology and NPTEL, Indian Institute of Technology, Guwahati, Sep- Dec2020
12. NPTEL online Certification of 12-week course successfully completed on “Principles of organic synthesis”. Organized by Centre for educational technology and NPTEL, Indian Institute of Technology, Guwahati, Sep- Dec2020
13. Three days’ National workshop for NSS and student’s development officers on “Managing stress and sustaining wellbeing of the students and society during and after pandemic period”. Conducted by the Maratha vidya prasarak samaj’s, K.R.T. Arts, B.H. Commerce and A.M. Science (K.T.H.M.) College Nashik. From 01/07/2020 to 03/07/2020.
14. “Chemical Safety and security management” on 20th July 2020 organized by B.S.M’s, Bhairavnath Vidnyan Mahavidyalaya, Khutbav, Pune

Mrs. Pandit A.A.

15. Five-day Faculty Development program on “Recent Advances in Smart Materials for sensors and energy applications.” Organized by Dept. of Physics, BMS Institute of Technology and Management Bengaluru, Karnataka, India. From 06-07-2020 to 10-07-2020
16. e- Workshop on “Solution to Joint CSIR-UGC NET Chemical Science Problems”. Organized by PG and Research Dept. of Chemistry, Muthurangam Government Arts College (Autonomous), Vellore from 17th to 20th June 2020
Mrs. Joshi K. M.
17. Five-day online Faculty Development Programme (FDP) on “chemistry significance in engineering, pharmacy, Nano technology and environment (cepne-2020)” organized by PRAGATI ENGINEERING COLLEGE (Autonomous) Hyderabad, Andhra Pradesh. India from 2nd to 6th June 2020
18. One-week online National Faculty Development program on “E-contents and ICT tools for innovative and effective teaching and learning process”. Organized by Roorkee College of Management and computer Applications, Roorkee, Uttarakhand from 8 August to 14 August 2020.

Botany-

1. Importance of Mycotaxonomy & need of Myco databases documentation on 28th May 2020
2. The patenting process 4th online session on 6/6/2020
3. National Workshop on Google Apps for Education & Moodle on 2nd & 3rd July 2020
4. S.Y.B. Sc Botany Restructured syllabus on 8th August 2020
5. Learn Moodle MOOC conducted by Moodle HQ Learn Moodle Basics, April 2020 (04 Weeks).
6. Completed Course in BOSS LINUX-UBUNTU operating system, Spoken tutorial Mumbai IIT Bombay, 15.04.2020 to 21.04.2020.
7. Workshop on Discussion S.Y.B.Sc. Botany Restructured Syllabus organized by Department of Botany, New Arts, Commerce and Science College, Parner and sponsored by Savitribai Phule Pune University, Pune on Saturday, 8 August, 2020.
8. Workshop on Restructuring of S.Y.B.Sc. Botany Syllabus at Vidya Pratisthan’s Arts, Science and Commerce College Baramati, Pune, 27.07.2020.
9. Workshop on Restructuring of M.Sc. Botany Syllabus at Ahmednagar College, 29.07.2020.
10. One-day workshop on e-content development and IPR, Higher Education, Govt of Maharashtra, 27.04.2020
11. Workshop on Discussion S.Y. B.Sc. Botany Restructured Syllabus organized by Department of Botany, New Arts, Commerce and Science College, Parner and sponsored by Savitribai Phule Pune University, Pune on Saturday, 8 August, 2020

Physics-

1. Dr. Rane L. V. Python programming, Conducted by university Michigan on 03 /01 /21
2. Mrs Wani P. N. Attended national Webinar on TYPESET research studio tool By Vishwanath karad MIT world peace university pune on 18 /6 20
3. Mrs.Wani.P.N. basic web series training and Certification programme on 07 /09 /20

Point No.10: Exhibitions/seminars /training courses conducted-

1. International webinar organized by dept.of Zoology on Controlling Mosquitos to protect public health west Nile, Zika, Chikungunya and dengue viruses, Guest Speaker, Prof. Phil Koehler, Dept of Entomology ,University of Florida11-5-2020.
2. Interactive E Content Development-Dr. Sameer Sahastrabuddhe, Savitribai Phule Pune University, Pune
3. Workshop on Moodle organized by Physics department in association with Computer science department on 4th July 2020

4. Workshop on Moodle LMS organized by department of Physics in association with dept. of Computer Science Organized on. 1st July 2020
5. Online essay competition organized by Department of Zoology on India after Covid, Environmental challenges in 2020, impact of online education on students on 15th August 2020
6. Online quiz competition organized by Dept. of Zoology on Save nature on 22 July 2020
7. National webinar on *Udyojagkata* and *bhandval ubharni* on 28th July 2020
8. Effective use of Power point in e content development organized by Physics department on 8th July 2020
9. State level Teacher's Training workshop on Miniscale Colorimetry based on CBCS Syllabus S. Y.B. Sc. Chemistry, organized on 08/02/2021 at 10.30am to 02.00pm. 122 Teachers from various colleges were participated.
10. Workshop on Sensory Evaluation, Mr. Mehul Dongare, Yogi Foods Pvt Ltd. Pune, 3-2-2021

Student Activity-

1. Virtual tour at IISER, Pune on the occasion of National science day, 28-2-2021
2. Field Visit to PCMC Science park on 6-3-2021
3. Online quiz on Save Nature organised by Dept. of Zoology on 22nd July 2020
4. Article writing competition on Biodiversity and wildlife conservation organised by dept. of Zoology on 4-10-2020
5. Poster competition on biodiversity and conservation organised by dept. of Zoology on 6-10-2020
6. Wildlife Quiz on Biodiversity and conservation organised on 10th Nov. 2020
7. Slogan writing organised by Dept. of Zoology on wildlife conservation organised on 6th June 2020
8. Environmental Quiz was organised by dept of Zoology on Environmental Awareness organised on 5th June 2020

Point No.11: Books/journals subscribed from grants-

The books and journals shall be procured in this financial year as the grant amount has been received in April 2021

Point No.12: Outreach activities (Popular lectures)-

1. **Virtual tour**-IISER, Pune on the occasion of National Science day- 28-2-2021
2. **Tree Plantation**- staff and students, 22-7-2020
3. Dr. R. A. Pawar, Resource person for criteria O3: Research, Innovation and extension organized by Tuljaram Chaturchand College of Arts, Science and Commerce, Baramati, Dist-Pune. During Five Days National level webinar on Assessment and Accreditation: A Revised Accreditation Framework for affiliated Colleges from 22/04/2020 to 26/04/2020
4. Dr. R. A. Pawar, The Four Days National level webinar on Assessment and Accreditation: A Revised Accreditation Framework for affiliated Colleges from 14/04/2020 to 17/04/2020 as a resource person for the topic criteria O3: Research, Innovation and extension organized by White Code
5. Dr. K. M. Gadave, Online guest lecture on "Gravimetric Analysis" on 08/01/2021 at 10.00am to 11.00am organized by PDEA's Waghire College of Arts, Commerce and Science, Saswad, Tal. Purandar, Dist. Pune-412301
6. Lecture on Development of Video Lectures in Chunks, by Rajesh Vartak, Savitribai Phule Pune University, Pune, on 24th Oct.2020
7. Lecture by Amit Patvardhan on Preparation of Video lectures Savitribai Phule Pune University, Pune

on 24th Oct.2020

8. **Healthy Diet for Youth-** Prof. Vishwamitra Mane, RMC Akurdi- 07-4/2021

Point No.13: Colleges mentored to apply for DBT Star College grants-

We have rendered support to two colleges to apply and further carry out the DBT Star College Scheme activities. All support and guidance is offered to the colleges. The colleges are-

1. Padmashree Dr. D.Y.Patil College, Pimpri- Pune
2. Waghire College- Saswad- Pune

Point No.14: Invited lectures-

Zoology:

1. Dr. Rohit Sharma, **NCCS, Pune**, Lecture on Human pathogenic fungi-**25-2-2021**
2. Joy Joseph, **University of Hyderabad** -Spikes and shapes inside insect brain- **9-2-21**
3. Prof..B.B. Nath, **Emeritus Professor, SPPU-DNA** Barcoding and its application- **3-06-20**
4. Dr. Sanjay Sane, **TIFR, NCBS, Bangalore**, How do Insects fly? - **9-10-2020**
5. Dr. Deepa Agashe, **NCBS, Bangalore**, Unravelling adaptations- **11-9-20**
6. Dr. Abhijeet Dutta- Rtd. Professor, Department of Zoology, Ranchi University, Ranchi, Jharkhand, on Career Opportunities in Zoology organised on 9th June 2020
7. Dr. Chandrashekhar Patil, **University of Illinois, Chicago, USA**, Metabolomics: How thinking across boundaries could reveal the knowns and unknowns of the system's metabolic rate- **04/7/2020**
8. Dr. Anjali Shivastava- Dean of Science Faculty, Jamshedpur Women's College, Jamshedpur, Jharkhand, on Higher Studies in Zoology, on 08-06-2020
9. Dr. Sanjay Kumar Mahato, Curator, **Tata Steel Zoological Park**, Jamshedpur on *Ex-situ* Conservation and Zoo Management on 01-10-2020
10. Prin.Dr.Neena Pajni, Principal, GPC, Alour, Khanna, Ludhiyana, Punjab on Biodiversity and Conservation on 08-10-2020

International Webinar-in Zoology on 'Controlling Mosquitos to protect public health West Nile,Zika, Chikungunya and Dengue viruses', Guest Speaker, **Prof. Phil Koehler**, Dept. of Entomology University of Florida USA-11-5-2020.

Chemistry:

1. Dr. Manisha Shewale, Dept. of Chemistry Baburaoji Gholap College Sangvi, Pune-27 on "Molecular Orbital Theory" on Saturday, 27 November 2020
2. Dr. Sandeep Rathod Dept. of Chemistry, Waghire College Saswad, Dist –Pune on "Chemical Kinetics" on Tuesday, 24-11-2020
3. Dr. Sanjay T. Chavan Deputy Assistant Director, Officer in Charge, Quality Assurance Division, Central Research Institute, Kasuli, Himachal Pradesh, India. on "Overview of Vaccine Production and Testing" on 27-02-2021.

Botany:

1. Biodiversity of Western Ghats' Need of its conservation, 11-2-2021, Dr. V. M. Shimpale
2. Plant diversity of Western Ghats and its conservations 27-2-2021, Prof. S.R. Yadav
3. Writing and Publishing a scientific research paper-what should you Know by Dr. Gitanjali Tomar, Institute of Bioinformatics and Biotechnology, Savitribai Phule Pune University, Pune organised on 27-7-2020

Physics:

1. Harshada Babrekar –Science park, University of Pune on Nanotechnology in various fields. 23 /2 /21

15. The faculty members have attended the following webinars:

Zoology-

1. Dr. A. J. Khandagle, online international workshop (FDP) organized by Deen Dayal Upadhyaya College, University of Delhi on Intellectual property rights during 9-13 Feb. 2021
2. Dr. R. A. Morey, International Webinar on 'Biodiversity and Wildlife Conservation' organized by Department of Zoology, Sant Gadge Baba Amravati University, Amravati on 30th May, 2020
3. Dr. R. A. Morey, National Webinar on "Impact Of COVID-19 On Biodiversity & UNEP's Tide Turners Plastic Challenge" Organised by Department of Zoology & Genetics in Collaboration with WWF India, Hyderabad Office
4. Dr. R. A. Morey International E-Conference on "Strategies & Challenges in Higher Education during COVID-19 Lockdown Period in India with reference to the World" organized by Government Vidarbha Institute of Science & Humanities, Amravati, India on 15th - 17th May, 2020
5. Dr. R. P. Chatterjee, National Webinar Environment and Human Behaviour at NSS College of CE, Mumbai organised on 19th May 2020
6. Dr. R. P. Chatterjee, National webinar on Biodiversity Conservation: Our Solutions Are in Nature at Dayanand Girls' PG College, Kanpur, UP organised on 22th May 2020
7. Dr. R. P. Chatterjee, International Webinar on Role of Applied Zoology in Current Scenario, organised by DLS PG College, Bilaspur, CG on 24-th July 2020
8. Dr. R. P. Chatterjee, National Webinar Ecosystem Services and Benefits of Wetland- Mangrove Ecosystem organised by Maharshi Dayanand College of ASC, Parel, Mumbai on 26th July 2020

Chemistry-

1. Dr. R. A. Pawar, Webinar on Materials Research and Sustainable Technology (MRST), organised by Maharashtra Academy of sciences MASc on 28th July 2020 in association with Centre for Materials for Electronics Technology (C-MET), Pune and SPPU, Pune
2. Dr. R. A. Pawar, One day online National seminar on "Advances in material Science ". Organized by dept. of Chemistry, Maharshi Dayanand College of Arts, Science and Commerce, Parel , Mumbai held on 20th May 2020
3. Dr. R. A. Pawar, International Conference on "Multifunctional Electronic Materials and Processing (MEMP-2021)". Organized by Centre for Materials for Electronics Technology (C-MET), PUNE, On 8th -10th March 2021
4. Dr. K. M. Gadave, International E- conference on "Cutting edge smart materials and nanotechnology held on 20th to 21 st August 2020 organized by Rayat Shikshan Sanstha's, Sadguru Gadage Maharaj College, Karad, Dist. Satara, Maharashtra, India.
5. Dr. K. M. Gadave One Day International online workshop on "Nanomaterial synthesis is emerging facet of the world" Organized by Late Pushpadevi Patil Arts and Science College, Risod on 20th May 2020
6. Dr. K. M. Gadave National webinar on "Two dimensional Materials for Diverse Applications". Organized by Cambridge Institute of Technology, Bengaluru, on 23rd May 2020
7. Mrs. Pandit A.A. National webinar on Non-linear optical behaviour of Nanomaterials on 28 May 2020 organized by Dept. of Physics, Lady Doak College, Madurai
8. Mrs. Pandit A.A Webinar on "Electroanalytical Techniques for water splitting: Dos and Don'ts". Organized by Dept. of Physics, Saveeta Engineering College affiliated to Anna University Chennai
9. Mrs. Pandit A. A, International Webinar entitled "Nano- The tiny warrior"-Engineering Nano medicine and Drug Delivery system. Organized by Dept. of Chemistry, Kongu Engineering College, Perundurai, Erode, Tamilnadu, India on 30 May 2020
10. Mrs. Pandit A.A One-week Faculty Development Programme on "Recent advances in science and technology." From 21 – 27 May 2020, Organized by RPS Group of Institutions 8th Mile Stone Balana, Mahendergarh, Haryana (NCR)

11. Mrs. Pandit A.A National webinar on “Two dimensional Materials for Diverse Applications”. Organized by Cambridge Institute of Technology, Bengaluru, on 23rd May 2020
12. Mrs. Pandit A. A International Webinar on “Cyclic and linear sweep voltammetry- Fundamentals and applications”. Conducted by the Dept. of Chemistry, Bhaktavatsalam Memorial College for women Chennai.
13. Mrs.K.M.Joshi, International Conference on “Multifunctional Electronic Materials and Processing (MEMP-2021)”. Organized by Centre for Materials for Electronics Technology (C-MET), PUNE , On 8th -10th March 2021
14. Dr. Kale Babita Amol National webinar on “Chromatography: Multifaceted Analytical Technique”. Held on 14th and 15th July 2020 organized by Smt. Devkiba Mohansinhji Chauhan College of Commerce and Science, Silvassa
15. Dr. Kale Babita Amol, Online poster competition on the topic “Role of Ayurved in Fight against Corona”. Held on Birthday of Hon. Shri. Ajitdada Pawar on 24-07-2020 organized by PDEA’s College of Ayurved and Research Centre, Nigdi, Pune-411044.
16. Dr.P.S.Kadam, Presented a poster in the online International conference on Climate change Mangroves & Sustainable Management on 24/4/2020
17. One Day workshop cum Webinar on content development & IPR on 27/4/2020
18. One-day Webinar on Strengthening the Immune system with Naturopathy on 6/5/2020
19. One-day National Webinar on plant for Immunity Bosting & Health care on 11th of May 2020
20. International E-conference on Strategies & challenges in Higher Education during Covid-19 from 15th to 17th May 2020.
21. AARI Bioscience webinar on Seaweed Biodiversity of India on 16th May 2020
22. Online International conference on biodiversity Conservation & Tourism on 17th May 2020
23. Participated in Online Biodiversity quiz on 22nd May 2020
24. Kosambi International Webinar Series on Plant Genomics 31 July to 2 August 2020
25. National Webinar on “Cyber Security in Coronavirus Era: Prevention and Protection 4 May 2020)
26. Online Webinar on Effective Learning & Evaluation using Learning Management System: Moodle on 8 May 2020
27. One-day Webinar on Reconstructed M.Sc. Botany Syllabus 29 July 2020
28. Webinar on Tissue culture on 10th June 2020
29. International Webinar on Biodiversity & Human health on 14th of June 2020
30. One-day National E-conference on Medicinal & Wild plan on 22nd June 2020
31. One-day National E-Conference on Recent aspects in biosciences on 29th June 2020
32. International webinar on Applied Biosciences on 7th & 8th August 2020
33. Webinar on trade Regulation & conservation of Medicinal plants on 10th August 2020
34. Two Days Online International Webinar on Science for Human Welfare & Development on 9th March 2021 & 10th March 2021
35. Three days’ national level webinar on Life Sciences 2020 Education & Innovation for future on 5th, 6th and 7th of May 2020