

Department of Biotechnology

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

1. Name of the College: PDEA'S Waghire College Arts, Commerce and Science, Saswad.

2. Name of Coordinator, designation: Dr. Vidya Vivek Ptatankar
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3. Assessment duration 01/04/2021 to 31/03/2022 Duration in years: 1 year

4. Details of Departments Supported

Sr. No	Name of Department	Courses (B.Sc./M.Sc./PG Diploma, certificate etc) offered	Regular Faculty members		
			With Ph.D.	Without Ph.D.	Total
			Total =22		
1.	Chemistry	BSc, MSc	3	11	14
2.	Microbiology	BSc, MSc	1	6	7
3.	Botany	BSc	3	3	6
4.	Zoology	BSc	2	1	3

5. Number & Date of Advisory committee meeting:

Meeting Number: 06

Dates of meeting: 18/09/2020, 28 /09/2021, 06 /02/2022, 17 /02/2022, 1/4/ 2022 and 11/04/2022

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

- 1. Organization of guest lecture:** In 2020-21 had organised 12 online guest lecture series of minimum for 2 days or maximum of 7 days per lecture series during pandemic (Covid-19) by department of Microbiology, Botany, Chemistry and Zoology. Botany department has organised 2- National level webinars. In this year we have organised. Online lectures for students by eminent personality in science from state and outside of the state.
- 2. Organization of online Workshops:** With regards to provision of practical knowledge for better understanding of the respective subjects, in previous year we have organised 4 Online hands-on workshops and 1 physical workshop on “hands on training on interactive panel” were arranged by the supported departments during this pandemic. This year we have focused on hands-on workshops and training programs rather than online guest lecture series. Department of Botany preferred blended learning so when lockdown was there, we organised **Flower arrangement** program online while **Plant tissue culture** and **Mushroom cultivation workshop** were organised in physical mode as the restrictions were not there from state government. Zoology department has conducted offline workshop on Apiculture and Practicals related to Apiculture, Hands on training on Bee Handling for Staff, Students and Local Near-by Farmers and Students visit to Apiculture unit of KVK, Baramati. A two days’ workshop on “**Soap and Detergent making**” was organised by Chemistry Department. Department of Microbiology has arranged 2 days training program on chromatographic and molecular biology techniques in collaboration with Make Intern and E-Cell IT Kharagpur.
- 3. Online Faculty Development Programme organized:** Our faculty should also be trained and orient with new subject knowledge with interdisciplinary organisation of some programs only for teachers. Seven -day online faculty development program (FDP) on “enriching online

teaching and learning”, on 7th Oct. 2021 to 13th Oct. 2021 by Department of Botany for all faculties, it was interdisciplinary faculty development program to enrich ICT knowledge and blended learning as well it was organised with in collaboration with HRDC, Savitribai Phule Pune University so the certificates were provided to only successful candidates of this FDP which is also consider for career advancement program. Department of Chemistry also organised the FDP. The theme of FDP is on “Characterization Techniques used in Chemical and Biological Sciences”, on 10th -16th February 2022. The primary objective of this FDP is to provide basic and advance knowledge of modern analytical tools/ characterization techniques used in the research field of Chemical and Biological sciences. Under this programme 16 lectures of eminent Resource Personalities in the field of chemical and biological sciences were organised. In this FDP, 43 faculty from various part of India have participated and successfully completed the program.

4. **Utilisation of Grant to enhance Research activities:** Although this year we tried to utilise the grant 100% by the benefitted departments plan to utilize it for students and teaching pragmas to enhance the quality of teaching and learning. We have assigned a project already to students where they can do referencing and basic work at home when pandemic restrictions were there and college is closed for them only online teaching was going on. Some second year B.Sc. students are doing small project of composting all kitchen waste at home under guidance of Microbiology department. Some of the students have started production of Biofertiizer, Jeevamrut etc. from Botany Department. One innovative project of FY BSc Botany students is collecting seeds of local varieties which are conserved generation to generation and they are displaying in the Exhibition organised by Community Seed Bank Project -Gram Gourav Pratishtan, Pani Panchayat Khalad. Zoology department involved in birds, moth biodiversity small survey projects of their localities. Department of Chemistry involved in soil and water testing projects. We have also organised Science Exhibition in month of December to motivate the innovative ideas of students.
5. **Skill development program:** As we mentioned in earlier reports, this year we focused on organization of more skill-based development programs. We organised Flower arrangement programs, Science exhibition, Soap and detergent making workshop, Interactive panel training, PTC hands-on workshop, Mushroom cultivation, Chromatographic techniques workshop, Molecular techniques workshop etc. Also, Through the hands-on training on Beekeeping by Zoology Department, which serves as a skill development program for students, the students fear regarding the honeybee stinging and handling was reduced. all these skill-based training programs and workshops were organised by funded departments to enrich entrepreneurship and professional skills in students. Students are highly motivated and started thinking of opportunities in life sciences and Biotechnology which is possible because of funding and guidelines provided by DBT to motivate and create awareness in students. Our teachers skills enhanced by organizing the faculty development program in coordination with UGC-HRDC SPPU Pune.

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

- Novel aspect introduced:

- In pandemic situations we have used virtual lab platforms of IIT, AMRITA University, an initiative of Ministry of Education under the National Mission of Education through ICT.
- Faculty Development program in collaboration with UGC-HRDC first time happened in the history of our college under that CAS advancement certificate programs on interdisciplinary and Chemical science subject we have organised due to the support provided by the Star DBT Scheme.
- All faculties of science have completed various training programs and trainings on online tools, blended learning tools, various programs organised by our institution as well as other institutions.
- Zoology department has set up small scale Apiary in the College campus through the Bee boxes purchased through DBT- STAR College Grant. Honey extraction process was also shown to the students.

-Novel aspect planning to introduced:

- We would like to start online short-term courses on Cell and Molecular biology, Nanobiotechnology, DNA sequencing, Science in day-to-day life, Medicinal Plant etc.
- Publications and Patent by Students: Project will be allotted to students of BSc first year. These projects will be mentored 3 yrs. Then the work of students will be published in reputed journals also students will be guided for patenting.
- We are based in rural part of Pune so we would like to train our students for food processing techniques of fruits as Purandar is known for figs and custard apple production as for vegetables as majority people are farmers.
- Separate academic calendar for DBT Star College activities and annual bulletin of DBT star college activities in annual academic periodical publication of the College.
- We would like to incorporate the training courses on germplasm conservation and preservation techniques.

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

The most important lesson learned throughout this pandemic was that, you need a to find solution to problems in spite of all the hardships. Due to the pandemic, the difficulties we faced in the first year was in implementation of this program. Secondly, we received the grant in August 2020. So, besides the certain planned activities, other additional activities were accordingly decided based on the future and further condition of COVID. However, because of the pandemic situation and restrictions imposed some of the objectives we had proposed were difficult to achieve in this situation. Though we tried our level best to finish the objectives. Next year in 2021-22 we have not received the next yaer grant aswe could not able to finish the first-year grant because of pandemic impositions. This year also half semester was online and second semester started with some restrictions still we could organise some hands-on training programs, workshops, practical's, Industrial field visits, etc. Thirdly, we lacked the required manpower, as some of the staff from supported departments got transferred, retired while few left the college. College schedule has been totally changed second semester of this academic year is extend till June so difficult finish the all-remaining grant for organizing workshops and lectures till March. But we have planned some of the activities in May as well. Yet, in spite of these difficulties, we have conducted online guest lecture series, online workshops, virtual visit to blood bank and online training programs as and when possible.

Faced Difficulties in arranging the following programs:

- Hands-on experiments/Practicals organization in first semester
- Skill development program for practical in first semester
- Industrial field visits for awareness and interest amongst in first semester students
- Small scientific research projects to create research interest among the students.
- Unable to conduct all extra practical's due to unavailability of students due to pandemic situations.

9. Key performance indicators:

		Key Performance Indicator																
S. no	Indicator	Pre-support								During /After Support								Remarks
1	No. of students admitted (Benifitted Departments)	Total = 418								Total = 481								
		M= 186				F=232				M= 208				F= 273				
		S C	S T	O B C	G	S C	S T	O B C	G	S C	S T	O B C	G	S C	S T	O B C	G	
	07	10	31	115	15	18	43	119	11	16	49	132	16	25	61	171		

2	No. of students passing out (%) Students Admitted/passing out (pass %)	TYBSC Admitted-161 Passed-152 Percentage -94.40%	TYBSC Admitted-158 Result awaited	
3	Drop-out rates	NA	-	
4	No. of students opting for MSc	50	-	
5	Average marks	First Class	-	
6	No. of hands-on experiments being conducted	Online Mode 54	-	
7	No. of new experiments introduced	35	-	
8	Publications (scopus indexed) /patents, if any.	4	8	
9	Training received by faculty	Training: 3 Faculty: 14	Training: 9 Faculty: 26	
10	Exhibitions/seminars/training courses conducted	06	11	
11	Books/journals subscribed from grants	2- (1. Plant Cell Biotechnology and Molecular Biology 2. International Journal of Current Research and Review) Journal subscribed	2 (1. Plant Cell Biotechnology and Molecular Biology 2. International Journal of Current Research and Review) Journal subscribed Journals periodicals subscribed	
	Outreach activities (Popular lectures)	4 -Online National Webinar (20-25 th March 2021) All Guest lectures are well known from other universities and big institutes like NCL,Osmania University, Goa university, Marwadi University, Saurashtra University, IIT Kharagpur etc.	5 -1 FDP interdisciplinary and 2 nd on chemical science-analytical techniques with UGC HRDC SPPU, Pune was appreciated by college teachers as well as outside teachers those who are participated. -Guest Lecture on Carrier Opportunities in pharmaceutical sciences for chemistry students by Pravin Kumar - Chromatographic techniques and Basic Molecular Biology techniques in collaboration with IIT Kharagpur	
13	Colleges mentored to apply for DBT Star College grants	02 - Annasaheb Magar College, Hadapsar, Pune -Annasaheb Waghire College, Otur during application for the scheme	03 - Annasaheb Magar College, Hadapsar, Pune -Annasaheb Waghire College, Otur during application for the scheme -Vinzer College	
14	Invited lectures	26	31	

- 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. (Annexure I: Proofs)

10. Self-evaluation

Department	*Objective (as stated in proposal)	% achieved	Reasons for underachievement / If achieved, state in quantitative metrics
Chemistry	-Equipment purchase -Extra practicals -Guest lecture -Workshops -Hands on training -MOU with other institution and companies	100%	Reason for under achievement- 1. Pandemic impositions, -Workshop and hands on training -Industrial/Field visits delayed

	-Industrial visits		
Microbiology	-Equipment purchase -Extra practicals -Guest lecture -Workshops -Hands on training -MOU with other institution and companies -Industrial visits	100%	Reason for under achievement- 1. Pandemic impositions, 2. Lack of manpower, -Workshop and hands on training -Industrial/Field visits, -Extra practicals because of pandemic restrictions and no offline schools.
Botany	-Equipment purchase -Extra practicals -Guest lecture -Workshops -Hands on training -MOU with other institution and companies -Industrial visits	100%	Reason for under achievement- 1. Pandemic impositions first semester, -MOU in process with Marwari University Rajkot, Gujrat - Industrial/Field visits delayed because of pandemic restrictions and no offline schools/colleges.
Zoology	-Equipment purchase -Extra practicals -Guest lecture -Workshops -Hands on training -MOU with other institution and companies -Industrial visits	100%	Reason for under achievement- 1. Pandemic impositions, -Workshop and hands on training delayed -Industrial/Field visits delayed because of pandemic restrictions and no offline schools/colleges. -MOU KVK Baramati is in progress

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

Naty
Co-Ordinator
(With Seal)
DBT-STAR College



Arun
28/5/2022
PRINCIPAL
(With Seal)
Waghure College, Saswad,
Tal. Purandar, Dist. Pune.

Course Coordinator
(With Seal)

Head of the Institution
(With Seal)

Annexure: 1



Department wise activities in 2021-22

Sr. No	Activity Name and Details	Department	TIME	DATE	Beniificiary students/Faculty/Non teaching staff Number
1	Online guest lecture on " Recombinant DNA Technology"	Microbiology	1.00pm to 3.00pm	30-10-2021	75
2	Chromatographic techniques and Basic Molecular Biology techniques	Microbiology	10.00am to 4.00 pm	14th and 15th-03-2022	62
3	Visit to KVK, Incubation and research centre, Mushroom production Factory	Microbiology	whole day	21-03-2022	87
4	Visit to Akshay Blood bank, Hadapsar	Microbiology	10.00am to 1.30pm	18th and 19th-04-2022	54
5	Hands on training of " Enrichment, Isolation and Enumeration of Bacteriophages	Microbiology	10.00am to 4.00pm	27th and 28th-04-2022	70
6	Health Awareness, Guidance and Checkup for College teaching and Non-teaching Staff	Zoology	12.00 noon to 5.00 pm	01-12-2021	116
7	One day Workshop on Apiculture and practicals related to it-1. Extraction of honey,2. Extraction of Wax,3. Extraction of Propolis, 4. Extraction of Pollen,5. Extraction of Bee venom and 6. Extraction of Royal Jelly	Zoology	10.00 am-4.00 pm	22-01-2022	65

8	One day Hands on Training on Bee handling for Students, Teaching and Non-teaching staff of Zoology department.	Zoology	10.00 am - 1.00 pm	02-02-2022	73
9	Visit to Apiculture Unit of KVK, Malegaon Khurd, Baramati	Zoology	7.00 am- 7.00 pm	05-03-2022	42
10	Honey extraction process from College Apiary for students and staff	Zoology	10.00 am - 12.00 pm	13-03-2022	11
11	Seven -day online faculty development program (FDP) on "enriching online teaching and learning"	Botany	9am- 2pm	7th to 13th-10-2021	40
12	One day workshop on flower arrangements	Botany	10am - 3pm	15-11-2021	278
13	Visit to Aried zone Fruit Research center of Fig and Custard apples	Botany	11am- 5Pm	01-02-2022	11
14	One day workshop on Button mushroom cultivation	Botany	10am - 5pm	28-02-2022	93
15	Visit to KVK, Baramati - Hydrponics, PTC, Plant pathology labs, Orchid cultivation, Apiculture unit etc.	Botany	7am- 6pm	05-03-2022	95
16	Two days handson workshop on Plant Tissue Culture	Botany	10am- 5pm	7th and 8th-03-2022	52
17	Online Gest Lecture Series	Chemistry	12:00 pm to 1:00 pm	2-12-2021 to 07-12-2021	35
18	Guest Lecture on Carrer Opportunities in Phramacutical for Chemistry	Chemistry	1:00 pm to 03:00 pm	16-12-2021	25
19	Online 7 days Faculty Development Programme on CTCBS-2022	Chemistry	9:00 am to 2:15 pm	10-02-2022 to 16-02-2022	43
20	Two day Workshop on Soap and Detergent Making	Chemistry	10:00 am onwords	28-03-2022 to 29-03-2022	52
21	Industrial Visit at Someshwar Sahakari Sakhar Karkhana, Someshwarnagar	Chemistry	8:00 am to 6:00 pm	30-03-2022	56

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Co-Ordinator
 (With Seal)
DBT-STAR College



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PRINCIPAL
 (With Seal)
 Wagholi College, Saswad,
 Tal. Purandar, Dist. Pune.

Glimpse of program organised during year 2021-22

Activities Conducted by Departments under DBT STAR College Scheme during 2021 -22

