R.P. GOGATE COLLEGE OF ARTS AND SCIENCE AND R. V. JOGALEKAR COLLEGE OF COMMERCE, RATNAGIRI

ANNUAL PROGRESS REPORT SUPPORTED UNDER STAR COLLEGE SCHEME

1. Name of the College: R. P. Gogate College of Arts and Science and R. V. Jogalekar College of Commerce, Ratnagiri

2. Name of Coordinator: **Dr Madhura Deepak Mukadam**
Designation, Address: Professor,
Phone Nos. Gogate Jogalekar College, Ratnagiri-415612
9421552856

3. Assessment duration**: 01/04/2023 to 31/03/2024** Duration in years: **One year**

4. Details of Departments Supported

Sr. No.	Name of Department	Courses (B.Sc./M.Sc./PG Diploma, certificate etc.) offered	Regular Faculty members	
			Total = **21**	
			With Ph.D.	Without Ph.D.
1.	Zoology	B.Sc. Ph. D.	01	04
2.	Chemistry	B.Sc. M.Sc. Ph. D.	05	02
3.	Physics	B.Sc. M.Sc. Ph. D.	02	02
4.	Botany	B. Sc.	02	03

5. Number & Date of Advisory Committee meeting: **One** – **Dt. 21/04/2023**

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

1) Improved infrastructure and Equipment

The Star College Scheme transformed our science departments. New equipment and upgraded facilities improved student access, leading to enhanced practical training and a significant confidence boost. Additionally, the scheme facilitated the development of new practical exercises and demonstrations, strengthening undergraduates' overall teaching and learning experience.

DBT funds further enriched our undergraduates' education by enabling an interdisciplinary Science Day celebration. This platform allowed students to participate in various events, present research (both orally and through posters), and showcase their hidden talents.

2) Innovative Experiments and Exposure to Research

The availability of better laboratories and equipment has allowed students to perform advanced and innovative experiments. This practical approach to learning has personalised their educational experience, making it more engaging and effective. Special guest lectures by eminent researchers and industry experts have further enriched the learning environment, providing both students and faculty with valuable insights into contemporary scientific developments. Additionally, we organized a

student research conference aiming to cultivate scientific awareness and enthusiasm. These initiatives have collectively contributed to creating a robust research-oriented mind-sets among students, encouraging them to pursue research with passion and curiosity.

3) Diverse Workshops and Programs

Grant funding empowered us to deliver workshops and programs that expanded students' practical skills and knowledge base.

Highlights included sessions on research methodology, plant identification, food preservation, and various science-related topics like herbal cosmetics, aquarium maintenance, and microscale chemistry techniques. These hands-on experiences in diverse scientific fields sparked student interest and equipped them with skills crucial for academic and professional success. This focus on practical learning fostered a deeper understanding of scientific concepts.

4) Practical Learning and Industry Exposure

One of the most remarkable aspects of the Star College Scheme is its emphasis on practical learning through industry exposure. The financial support has allowed the college to organize numerous field trips to various industries. These trips bridge the crucial gap between theoretical knowledge and real-world applications. By witnessing first-hand how their classroom learnings translate to actual job settings, students gain a deeper understanding and appreciation for the practical relevance of their education.

Furthermore, the industrial visits and field trips conducted under this scheme offer a unique benefit. They enable deserving students from economically disadvantaged backgrounds to develop academic rapport with industry professionals. This exposure creates a valuable platform for these students, potentially enhancing their future employability.

5) This grant allows our UG students to teach others about science and the environment! Our college students have been busy spreading knowledge about science and the environment! Through fun and informative programs, they've engaged both school children and adults in our city and surrounding areas. Celebrating International Mangrove Day and Science Day, they raised awareness about crucial issues like biodiversity and coastal health. The Star College Scheme's second year has been a success. Upgraded infrastructure, innovative experiments, and diverse workshops fostered a dynamic learning environment that empowers academic and professional growth. By broadening perspectives, the scheme equips students with the skills to become tomorrow's science and environmental leaders.

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

During the DBT STAR College Scheme, we've been working to improve our education. We've added new things to make learning more interesting and in line with the latest in science education. These changes are meant to make studying more enjoyable and encourage us to keep getting better. We've already started some projects, and we have more exciting plans for the future.

- **Community Science Projects:** The student-led science awareness programs could evolve into collaborative community science projects. This would allow students to apply their knowledge to real-world problems and contribute valuable data to local environmental initiatives.
- **Interdisciplinary Research Revolution**: Plans are underway for encouraging collaboration between science departments which helps students from different

fields work together, fostering a well-rounded understanding of scientific problems and paving the way for innovative solutions.

- **Science Communication Workshops**: The Star College Scheme is being developed to equip students with the skills to become effective science communicators. Workshops covering topics like public speaking, science writing, social media outreach, and creating engaging presentations will empower them to share their scientific knowledge beyond academic circles.

8. Lessons learnt / difficulties faced/suggestions if any, in implementing the program and utilizing the DBT grant. (Max 3 points within 300 words).

Lessons Learned:

- Basic equipment facilities were expanded.
- Research aptitude was fostered and developed.
- Introduction of research projects for first- and second-year students across all participating departments.
- Encouragement for students to participate and present papers in conferences/seminars.
- Fostering relationships with eminent subject experts in all departments.
- Improvement of infrastructure facilities in all participating departments.

Difficulties Faced:

- Lack of clear-cut and well-defined demarcation of the amount to be utilized under each head (recurring, contingency, etc.).
- Scheduling additional sessions for students outside their regular class times. However, this challenge was successfully addressed through effective time management and strategic planning.

9. Key performance indicators:

S. No.	Indicator	Pre-support								During /After Support								Remarks
		Department of Zoology																
1.	No. of students admitted	Total = 200								Total = 150								
		M=44				F=156				M= 38				F=112				
		SC	ST	OBC	G	SC	ST	OBC	G	SC	ST	OBC	G	SC	ST	OBC	G	
		4	2	14	24	12	3	54	87	4	2	20	12	10	5	48	39	
		Department of Chemistry																
		Total = 280								Total = 230								
		M = 110 F =170								M = 100				F = 130				
		SC	ST	OBC	G	SC	ST	OBC	G	SC	ST	OBC	G	SC	ST	OBC	G	
		12	3	30	65	6	1	100	63	9	5	40	46					
		Department of Physics																
		Total = 85								Total = 78								
		M = 40				F =45				M = 30				F =48				
		SC	ST	OBC	G	SC	ST	OBC	G	SC	ST	OBC	G	SC	ST	OBC	G	
		3	-	12	25	2	-	15	28	3	-	9	18	4	1	17	26	
		Department of Botany																
		Total = 150								Total = 87								
		M = 22				F =128				M = 15				F = 72				
		SC	ST	OBC	G	SC	ST	OBC	G	SC	ST	OBC	G	SC	ST	OBC	G	
		4	2	09	07	5	1	54	68	3	2	4	6	8	3	22	39	

2.	No. of students passing out (%) students Admitted /passing out (pass %)	**Zoology**	60%	78%	
		Chemistry	52%	70%	
		Physics	62 %	75%	
		Botany	80%	85%	
3.	Drop-out rates	**Zoology**	3%	1%	
		Chemistry	4%	2%	
		Physics	2%	1%	
		Botany	2%	1%	
4.	No. of students opting for M. Sc.	**Zoology**	04	07	
		Chemistry	10	15	
		Physics	02	04	
		Botany	04	06	
5.	Average marks	**Zoology**	66%	72%	
		Chemistry	63%	66%	
		Physics	62%	64%	
		Botany	68%	70%	
6.	No. of hands-on experiments being conducted	**Zoology**	60	65	ANNEXURE -I
		Chemistry	60	64	
		Physics	60	64	
		Botany	60	70	
7.	No. of new experiments introduced	**Zoology**	05		
		Chemistry	01	Nil	
		Physics	Nil	Nil	
		Botany	Nil	Nil	
8.	Publication (Scopus indexed)/ patents if any	**Zoology**	Nil	Nil	
		Chemistry	Nil	Nil	
		Physics	Nil	Nil	
		Botany	Nil	01	
9.	Training received by faculty	**Zoology**	03	05	ANNEXURE -II
		Chemistry	04	02	
		Physics	03	00	
		Botany	03	01	
10.	Exhibitions/seminars / training courses conducted	**Zoology**	03	08	ANNEXURE -III
		Chemistry	01	02	
		Physics	01	02	
		Botany	04	05	
11.	Books/journals	**Zoology**	06	Nil	
		Chemistry	Nil	Nil	

	subscribed from grants	**Physics**	Nil	Nil	
		Botany	Nil	Nil	
12.	Outreach activities (Popular lectures)	**Zoology**	02	01	ANNEXURE - IV
		Chemistry	02	01	
		Physics	02	01	
		Botany	02	04	
13.	College mentored to apply for DBT Star college grants	Nil		Nil	
14.	Invited lectures	**Zoology**	02	02	ANNEXURE -V
		Chemistry	02	Nil	
		Physics	02	02	
		Botany	01	01	

Course Coordinator
(With Seal)
DBT Star College Scheme
R. P. Gogate College of Arts & Science And
R. V. Jogalekar College of Commerce, Ratnagiri.

Head of the Institution
R.P.Gogate College of Arts & Science and
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(Autonomous),Ratnagiri

10. Self-evaluation			
Department	***Objective (as stated in a proposal)**	**% achieved**	**Reasons for Under-achievement / If achieved, state in quantitative metrics**
Zoology	To inculcate need-based skilled courses to the learners.	75	1.5 (In the university-affiliated system, designing was not possible, but we are planning to do so in autonomous status.)
	To cater hands-on training of instruments to learners.	100	2.0
	To undertake interdisciplinary research projects.	75	1.5 (Interdisciplinary projects for students are ongoing but not yet completed.)
	To organize workshops, seminars, and conferences for teachers and research scholars.	100	2.0
	Introduce practical modules aligning with industry demands,that help students to learn skills needed for jobs in Zoology.	75	1.5 (Practical modules are prepared but need editing)
Chemistry	To impart basic experimental skills relating to chemistry to the learners.	100	2.0
	To cater hands-on training of instruments to learners.	100	2.0
	To inculcate interdisciplinary research culture among learners.	75	1.5 (The interdisciplinary projects for students are currently ongoing.)
	To organize workshops, seminars, and conferences for learners and teachers.	75	1.5 (A few workshops were conducted and more are planned in the coming year)
	Teach students about using environmentally friendly practices in chemistry experiments. (green chemistry)	100	2.0
Physics	To inculcate need-based skilled courses to the learners.	75	1.5 (In the university-affiliated system, designing was not

			possible, but we are planning to do so in autonomous status.)
	To cater hands-on training of instruments to learners.	100	10
	To undertake interdisciplinary research projects.	75	1.5 (The projects for students are going on)
	To organize workshops, seminars, and conferences for teachers and research scholars.	100	1.5 (Workshops were conducted, and there are plans to conduct more in the future.
	Introduce courses that enhance students' proficiency in using computational tools and software relevant to physics.	75	1.5 (Modules are designed and will be included in the syllabus
Botany	To inculcate need-based skilled courses to the learners.	75	1.5 (In the university-affiliated system, designing was not possible, but we are planning to do so in autonomous status.)
	To cater hands-on training of instruments to learners.	100	2.0
	To undertake interdisciplinary research projects.	75	1.5 (Students have been assigned interdisciplinary projects, but as of now, they are not yet completed.
	To organize workshops, seminars, and conferences for teachers and research scholars	100	2.0
	Integrate courses that focus on sustainable and eco-friendly practices in botany.	100	2.0

Course Coordinator
(With Seal) (With Seal)
Program Coordinator
DBT Star College Scheme
R. P. Gogate College of Arts & Science And
R. V. Jogalekar College of Commerce, Ratnagiri.

RATNAGIRI

Head of the Institution
R.P.Gogate College of Arts & Science and
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(Autonomous),Ratnagiri

ANNEXURE –I

NEW EXPERIMENTS INTRODUCED IN THE SY: 2023-24

ZOOLOGY: New Experiments Conducted (3)			No. of students
1	Preparation of ppm and ppb solutions.	F. Y. B. Sc.	6
2	Assessments of the compatibility of different fish varieties in a community tank	F. Y. B. Sc.	10
3	To analyze water samples from the industrial areas for the amount of total dissolved solids(TDS) and total suspended solids (TSS)	T. Y. B. Sc.	5

ZOOLOGY: PROJECTS (3)			
Sr. No	**Project Title**	**Class**	**Name of student /Supervisor**
1.	Assessment of Body Mass Index among undergraduate students in Ratnagiri	F.Y. B. Sc.	Pallavi Hadimani and Khatija Shaikh/ Supervisor- Ms. Mohini Bamane
2.	Study of Menstrual abnormalities and their association with changing lifestyle in adolescent girls in Ratnagiri	S. Y. B. Sc.	Swara Shinde and Rucha Rawool / Supervisor- Dr. Madhura Mukadam

ANNEXURE –II

LIST OF TRAINING COURSES/WORKSHOPS/CONFERENCES ATTENDED BY THE FACULTY DURING SY: 2023-24

DEPARTMENT: ZOOLOGY

	Title	Date	Proofs (Hyperlinked)
Name: **Dr. Madhura Mukadam**			
1.	Online Certificate Course Cum Workshop of 10 Days on "Exploring the Power of CHATGPT: Enhancing Communication and Learning" organized by the Department of Computer Science in Collaboration with E-Resource Development Cell, Sanatan Dharma College, Ambala Cantt, Kurukshetra University, Kurukshetra	1/09/2023 to 10/09/2023	https://tinyurl.com/yckdccbs
2.	A 10-day online interactive workshop on, "Molecular Modelling, docking and simulation Studies organized by Codon Biosciences Pvt. Ltd. Goa.	16/10/2023 to 27/10/2023	https://tinyurl.com/4jmnucxs
Name: **Ms. Mohini Bamane**			
1	One week capacity building program for UG science teachers at HBSCE, Mumbai	11/03/2024 to 16/04/2024	https://tinyurl.com/mr2knxfm
Name : **Mr. Ambadas Rodge**			
	MS-DEED level-1 workshop on Introduction to Innovative Pedagogies and Assessment for UG Teachers at Ratnagiri	03/02/2024 to 04/02/2024	https://tinyurl.com/34vtwsnw
Name : **Mrs. Kanchan Dhakade**			

	MS-DEED level-1 workshop on Introduction to Innovative Pedagogies and Assessment for UG Teachers at Ratnagiri	03/02/2024 to 04/02/2024	https://tinyurl.com/ms8aa96r

DEPARTMENT: CHEMISTRY

	Title	Date	Proofs (Hyperlinked)
Name: **Dr. Aparna M. Kulkarni**			
1.	3rd International Conference On "Women in Science & Technology: Creating Sustainable Career" organized at Birla Vishvakarma Mahavidyalaya (Engineering College)	28/12/2023 to 30/12/2023	https://tinyurl.com/4f7v5wdk
2.	MS-DEED Level 1 In-person Workshop on Introduction to Innovative Pedagogies for Undergraduate Teachers at Ratnagiri	3/04/2023 to 5/04/2023	https://tinyurl.com/y5k6adf8

DEPARTMENT: PHYSICS

	Title	Date	Proofs (Hyperlinked)
Name: **Dr. Bhushan Dhale**			
1.	MS-DEED level-1 workshop on Introduction to Innovative Pedagogies and Assessment for UG Teachers at Ratnagiri.	03/02/2024 to 04/02/2024	https://tinyurl.com/2s3prcvp
2.	National Seminar on Applications of Nanoscience and Nanotechnology organized by Post Graduate Department of Physics, Devchand College, Arjunnagar, Karnataka.	26/02/2024 to 2/03/2024	https://tinyurl.com/2krmmn2w
3.	IP Awareness/Training program under National Intellectual Property Awareness Mission organized by Intellectual Property office, India.	28/09/2023	https://tinyurl.com/bdf542jh
4.	Faculty Development Programme on Advanced Physics in Engineering organized by Department of Basic science and Humanities at Sanjivan Engineering and Technology Institute, Panhala, Kolhapur.	11/03/2024 to 15/03/2024	https://tinyurl.com/42zhzw46

DEPARTMENT: BOTANY

	Title	Date	Proofs (Hyperlinked)
Name: **Mrs. Rujuta Godbole**			
1.	MS-DEED level-1 workshop on Introduction to Innovative Pedagogies and Assessment for UG Teachers at Ratnagiri.	03/02/2024 to 04/02/2024	https://tinyurl.com/5f6x8jcp

ANNEXURE –III

EXHIBITIONS /SEMINARS/TRAINING COURSES CONDUCTED/ VISITS DURING SY: 2023-24

	Title	**Date**	**Resource Persons**	**No. of Beneficiaries**
Department of Zoology				

Workshops				
1.	A comprehensive workshop on 'Research Roadmap'.	7/12/2023 to 8/12/2023	Dr. Madhura Mukadam and Dr. Sonali Kadam, Gogate Jogalekar College, Ratnagiri	**50**
2.	A specialized workshop, Aquatic Mastery: Aquarium Setup, Maintenance, and Fish Breeding.	11/01/2024 to 12/01/2024	Mr. Suyog Bhagwat from Suyash Aquarium, Ratnagiri,	**60**
3.	A hands-on workshop on 'Artificial Fish Feed Preparation using the Square Method'.	20/01/2024	Dr Madhura Mukadam, Head, Dept. of Zoology, Gogate Jogalekar College, Ratnagiri	**25**
4.	A hands-on workshop on 'Preparation of value-added fish products'	24/01/2024	Dr. Asif Pagarkar and Mr. Shrikant Sharangdhar from College of Fisheries, Shirgaon, Ratnagiri	**28**
Conferences				
1.	Student Conference on 'Wetlands and Human Wellbeing' on the occasion of World Wetlands Day 2nd Feb. 2024	13/02/2024	**UG students**	**60**
Exhibitions				
1.	On the Occasion of National Science Day. Theme- 'Cellular Chronicles'	28/02/2024	UG students	**200**
Field Visits				
1	An industrial visit to Goat Farming, Vermicompost, and Exotic Bird Farming Unit at Devrukh, Dist. Ratnagiri	10/12/2023	Mr. Pranav Panwalkar	**35**
2	Field visit to the mangrove ecosystem at Narayanmali, Ratnagiri.	14/12/2023	Mr. Swastik Gawade, Project Associate, Mangrove Cell, Ratnagiri,	**45**

	Title	**Date**	**Resource Persons**	**No. of Beneficiaries**
Department of Chemistry				
Workshops				
1.	Microscale Experiments in Chemistry	21/01/2024	Dr. Aparna Kulkarni, Associate Professor, Dept. of Chemistry, Gogate Jogalekar College, Ratnagiri	**20**
2.	National Level Workshop On 'Operation and maintenance of laboratory equipments'	5/03/2024 to 9/03/2024	N. N. Rao, Minal Tamhankar, Sudhir Kumar and Sarita Thopte, from Western Regional Instrumentation Centre (WRIC), University of Mumbai	**25**

	Title	Date	Resource Persons	No. of Beneficiaries
Department of Physics				
Workshops				
1.	A National Level Workshop on 'Repair and Maintenance of Computer Hardware'	5/03/2024 to 9/03/2024	Moosa Thakur, Faculty from Western Regional Instrumentation Centre (WRIC), University of Mumbai	**25**
Exhibitions				
1.	On the occasion of the National Science Day theme-	28/02/2024		

Sr. No.	Title	Date	Resource Persons	No. of Beneficiaries
Department of Botany				
Training courses				
1.	A certificate course in 'Herbal cosmetics'	3/11/2023 to 8/11/2023	Dr. Sonali Kadam, Mrs. Rujuta Godbole and Mrs. Priyanka Avere	**27**
2.	A certificate course on 'Fruit preservation and processing technique'	11/12/2023 to 15/12/2023	Dr. Sonali Kadam, Mrs. Rujuta Godbole Mrs. Priyanka Shinde	**18**
Workshops				
1.	Identification of Medicinal plants of the Konkan region.	4/09/2023	Sharad Apate and Dr. Sonali Kadam	**30**
Exhibitions				
1.	Medicinal plants (Dry and fresh plant specimens)	4/09/2023	Sharad Apate and Dr. Sonali Kadam	**42**
Seminar				
1.	One Day seminar on Wetlands of South Konkan	7/02/2024	Dr Pramod Hanamgond, Chairman, geological Society of India, Regional Centre, Belgaum	**35**

ANNEXURE - IV

OUTREACH INTERDISCIPLINARY ACTIVITIES DURING SY: 2023-24

DEPARTMENT: ZOOLOGY

Sr. No.	Name of Activity	Date/s	Beneficiaries
1	A workshop on 'Microtomy and Preparation of Histological Slides'	15/09/2023	**20**

DEPARTMENT: CHEMISTRY

Sr. No.	Name of Activity	Date/s	Beneficiaries

1	A workshop on 'Green Chemistry and Microscale Technique' at New Arts, Commerce and Science College, Ratnagiri	15/03/2024	**45**

DEPARTMENT: PHYSICS

Sr. No.	Name of Activity	Date/s	Beneficiaries
1	Come and Learn Physics	25/02/23	**85**

DEPARTMENT: BOTANY

Sr. No.	Name of Activity	Date	Beneficiaries
1.	Nisarg Parichay Shibir for 5th to 8th standard students.	18/04/2023 to 19/04/2023	**22**
2.	Nature walk at Kurdhe fata on for students, and members of Paryawaran Mandal, Sky and Earth.	04/09/2024	**80**
3.	Exhibition of Wild vegetables in Shivaji High School, Ratnagiri	26/08/2023	**60**
4.	Exhibition of Wild vegetables in Godutai Jambhekar High School, Ratnagiri	29/08/2023	**100**

ANNEXURE -V

INVITED LECTURES DURING SY: 2023-24

DEPARTMENT: ZOOLOGY

Sr. No.	Topic	Resource Person	Date	Beneficiaries
1.	The Role of Marine Mammals in Marine Ecosystems	Dr Anant Pande, Program Head, Marine Megafauna, WCS, Bengaluru, Karnataka, India	31/01/2024	**40**
2.	The Benefits of Semi-Intensive Goat Farming Systems	Mr Pranav Panwalkar, Proprietor, of Aaashirwad Goat Farm, Devrukh	10/12/2023	**35**

DEPARTMENT: PHYSICS

Sr. No.	Topic	Resource Person	Date	Beneficiaries
1.	Learning to Learn	Dr. Shyam Joshi, former head and Principal of DBJ College, Chiplun	14/09/2023.	**84**
2.	Conquering Organisational Barriers	Mr. Mangesh Gadre	24/08/2023	**35**

DEPARTMENT: BOTANY

Sr. No.	Topic	Resource Person	Date	Beneficiaries
1.	Plants on the platter	Mandar Datar, Director of Agharkar Research Institute, Pune	6/02/2024	**84**