

Hindi Vidya Prachar Samiti's
RAMNIRANJAN JHUNJHUNWALA COLLEGE

DBT Star First Year Progress Report
(November 2020- August 2021)

1. **Name of the College :** RAMNIRANJAN JHUNJHUNWALA COLLEGE OF ARTS,
SCIENCE AND COMMERCE, GHATKOPAR (W), MUMBAI 400 086.

2. **Name of Coordinator, Designation, Address, Phone nos.:**

<i>Name</i>	Dr Himanshu Dawda
<i>Designation</i>	I/C Principal
<i>Address</i>	Ramniranjan Jhunjhunwala College, Ghatkopar (W)
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3. **Assessment duration :**01/11/2020 to 20/08/2021 **Duration in years :** nine months

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=47	
01.	Botany	B.Sc, M.Sc,Ph.D., P G Diploma Horticulture and Landscape gardening, P G Diploma in Dietitics and Applied Nutrition	05	04
02.	Zoology	B.Sc., M .Sc., Ph.D	04	05
03	Chemistry	B.Sc., M.Sc., Ph.D	13	04
04.	Physics	B.Sc., M.Sc., Ph D.	04	05

5. Number & Date of Advisory committee meeting

Number & Date of Advisory committee meeting:

No Advisory Meeting conducted.

Advisory committee formed as follows

- Principal - Chairman- Dr. Himanshu Dawda
- DBT Representatives - 1. Adviser, DBT , 2. Programme Officer, Star College
- External Experts - Members

Sr. No	Name	Company / University	Department
1	Dr S G Bhagwat	Retd Scientist B A RC	Botany
2	Dr Prabhod Chobe	Retd Scientist BAF, Innovation	Chemistry
3	Dr.	I I T Mumbai	Physics
4	Dr Sasi Menon	Ruia College	Zoology

d) Faculty members from all departments

e) Over all coordinator Dr Himanshu Dawda Member Secretary

6. Qualitative improvements due to DBT support.

- a. This year due to COVID 19 Pandemic educational Institutes were closed and a new normal replaced the chirping vibrant campus. As soon as it was realized that this is going to be a long driven process. Teachers were trained for online effective delivery of content not only for theory but also students were trained to conduct practicals at home laboratories.
- b. Students were given guidance to perform some experiments at home. They were also trained in making videos which they uploaded. Google class rooms were created for all classes so all contents and recorded lectures were uploaded. Pandemic led to migration of students to villages and job losses but we ensured that no one dropped out. Students were provided with downloaded lectures, content was made available to them and this helped in their getting moral support and adjust to the sudden challenging times
- c. With the DBT support under the star college scheme project based learning has become an important teaching, learning and evaluation technique and students enjoy learning by doing. Teachers from all departments discussed on how to continue with project work when students are not able to come to the premises. So home based projects, case studies, Surveys were designed by students to come up with a learning process in lieu of actual project work being done in the laboratory.
 - Some of the interesting projects were
 - Culturing *Drosophila* in home laboratory using banana pulp, tomatoes etc and observing the morphological characters of fly by using a hand lens.
 - Extraction of natural dye from vegetables like Beet, Onion skin, turmeric etc
 - Growing micro greens and educating family members about the nutritional value specially with reference to increasing immunity and providing adequate protein in the diet as a precautionary measure to protect from COVID infection.
 - Making a seasonal photo diary of plants, proper identification and record keeping of the same
 - Making herbal tea using flowers of *Clitoria*, leaves of lemon grass, tulsi, ginger rhizome.
 - Students conducted projects based on scientific reading from reputed journals and science magazines eg Why complex numbers are necessary in QM, Introduction to synchronization, Introduction to Li Fi to name a few.

Success due to DBT Star college support

- As mentioned earlier since students are used to learn by doing projects they continued to engage themselves by performing experiments at home. Training imparted to them due to DBT support also helped them in placements. Self paced learning through NPTEL establishment of local chapter and COURSEERA which provided more than 4500 courses free of charged helped the students learning emerging areas in science.

 - d. All departments organized virtual field trips, since no travel was possible during Pandemic. Students took photographs of the flora and fauna near their residence and made albums and video. This enabled them also to correctly learn to identify plants. Chemistry department organized tour of Amul chocolate factory, Botany Department conducted virtual tour to Sahyadris, Godrej Mangrove park.

 - e. The Department of Departments of Botany, Zoology, Chemistry and Physics conduct their science popularization neighbourhood activity through their annual fest Botanica, Zoofest, Chem bond and Physitech. The students of 11th and 12th also get an opportunity to visit the exhibitions and the departments of Botany and Zoology invite school children so as ignite the scientific temperament when they are young. In view of the pandemic since no physical presence was possible all exhibitions were conducted online some students made videos and presented their projects other who had good network could present it online. The school children were enthusiastic and also interacted. The parents could also see the projects and they also interacted with the students.
7. Any Novel aspect introduced or planning to introduce during the Scheme duration.
- i. The Departments of Botany, Zoology, Chemistry and Physics invited their alumni to guide our UG students about various career opportunities specially higher studies and research. On line mode enabled interaction with alumni who are remotely placed.
 - ii. All departments engaged students by conducting value added courses like Department of Botany organized Tree appreciation, Basics of Gardening, Instrumentation & Techniques in Biological Sciences these were interdepartmental of 30 hours duration and the course content was designed by teachers with an inbuilt assessment of students. The department of Zoology organized study of Conchology, The department of Chemistry organized a course in Laboratory safety and basic IT skills for a chemist, Nanomaterials and Nanotechnology, the department of Physics conducted course on use of computers in solving Physics problems.
 - iii. Our Mentor Institute National Institute of Biomedical genomics Kalyani invited us for their programs under Science Setu. The first program was held on 23rd February 2021 in collaboration with NIBMG organized a webinar entitled

Genomics. On this occasion Prof Shahid Jameel Director Trivedi School of Biosciences gave a talk on COVID 19 in India. Dr Sarah Teichmann Cellular Genetics Programme Head University of Cambridge UK delivered a lecture on Human Cell Atlas: One cell at a time. UG students from all departments attended the session. Based on this session quiz was organized to find out how attentive students were. This was followed by lecture entitled “ genomics enabling deep understanding of cancer by Dr Arindam Maitra on 22/6/2021, NIBMG talk 23/7/2021 Dr Analabha Basu Reconstruction of Ancestral footprints Genetics and statistics as tools NIBMG foundation day lecture 2021 speaker Dr Shiv Pillai Loss of T follicular helper cell, induction of DNA demethylation and CD4 differentiation and viral variant generation in COVID -19

8. Lessons learnt / difficulties faced/suggestions if any, in implementation of the programme and utilization of DBT grant. (Max 3 points within 300 words).
- a. We have started working more as a homogenous group with sharing of expertise and facilitating mobility of students among the departments. We also helped the departments of humanities and commerce to collaborate with us and encouraged them to participate in intercollegiate research festivals like Avishkar organized by University of Mumbai. Another achievement of collaborative work was paper presentation by students across faculty on science day, 28/2/2021 in the event : Anusandhan
 - b. Difficulties faced-
 - i) Operation part of fund utilization via PFMS, specially after lock down since all bills remained pending as institutions are working partially with staggered timings.

9. Key performance indicators

a. Botany

S. no	Indicator	In star college scheme from 2014-2018 then under strengthening from 2018-2019	During /After Support (2020-21) Star Status														
1	No. of students admitted	Total = 393								Total = 369							
		M= 124				F=269				M= 102				F= 267			
		SC	ST	OBC	G	S	ST	OBC	G	SC	ST	OB	G	SC	ST	OBC	G
		3	--	4	117	4		4	261	1	-	2	99	1		5	261
2	No. of students passing out (%) Students Admitted/passing out (pass %)	95%								100%							
3	Drop-out rates	NIL								NIL							
4	No. of students opting for MSc	Botany – 12 out of 48								Botany – 20 out of 45							
5	Average marks	A								A+							
6	No. of hands-on experiments being conducted	FY- 34 SY- 57 TY- 103								FY-34 conducted online SY-57 TY-103							
7	No. of new experiments introduced	F Y 2 S Y 2 T Y 2								FY- 2 SY- 2 TY- 2							
8	Publications (scopus indexed) /patents, if any.	NIL								Two publications 5 patents submitted the claims and sent for examination							
9	Training received by faculty	1 Production of educational video May 18-19. 2018 Dr Anil Avhad, Capt Pravin Nayak								All faculty received training in preparation of e content four quadrant MOOC;s Innovative evaluation techniques Two staff members attended one week online FDP on Assessment and Evaluation in Higher education							

			from 14 th July to 19 th July, 2021.
10	Exhibitions/seminars/training courses conducted	<ol style="list-style-type: none"> 1. Dr D V Amonkar Elocution competition intercollegiate competition theme based 2. Botanica 10/12/2018 3. Making of eco friendly Holi colors Feb 27, 2018 	<ol style="list-style-type: none"> 1. Botanica- Intra-department festival held online with school children participating actively 2. World wetland quiz competition (2/2/2021) 3. Department conducted three value added courses for the students which attracted students from other departments as well these were Tree appreciation, Gardening, Instrumentation and Techniques in Biological Sciences.
11	Books/journals subscribed from grants	Nil	The DBT grants sanctioned for books has been utilized in the previous financial year
12	Outreach activities (Popular lectures)	<ol style="list-style-type: none"> 1. Botanica annual fest to enthuse students to take explore the fascinating world of science 2. Popular lectures on career guidance 3. Exhibition of wild vegetables 	1 Botanica Annual fest to address local needs and out reach program 120 students projects via video to showcase the fascinating worlds of plants three schools in three session attended the online session. Participating students Dominic Savio (200 students), Hindi High School Hindi medium (200 students) and Indra Deo Singh English medium school (130 students)
13	Colleges mentored to apply for DBT Star College grants	Nil	Nil
14	Invited lectures	<p>Dr Ramesh Shah City Farming 13/8/2018</p> <p>Dr Ramesh Madav GIS mapping 24/8/2018</p> <p>Dr Mukund Bhagwat Scientist Agarkar Research Institute 11/12/2018</p> <p>30/6/2019</p> <p>1 Dr Sasi Menon</p> <p>2 Dr Sunita Shailajan</p>	<p>1 Gandhiji's view on Environment by Dr P G Kale 3rd October, 2020</p> <p>2 Solid waste Management and Disasters Environmentalist Dr Poonam Hudar 4/1/2020</p> <p>3 Plasma wave processes in the Earth's Magnetosphere Dr Amar Kakad Professor Indian Institute of Geomagnetism New Panvel, Navi</p>

		<p>3 Dr Suchita Deepak 4 Dr Ashutosh Pudage 5 Dr Subodh Chavan</p>	<p>Mumbai 4 Webinar on Mangroves through the eyes of Biologist Shri Hemnat and Shri Deshpande Phirozeshah Godrej Mangrove park (2/3/2021) 5 Applications of Group Theory to Electronic structure by Dr Suresh Pawar Associate University Department of Chemistry (26/3/2021) 6 Post Harvest Management of flowers Dr P Naveen Kumar (Principal Scientist Lanscaping ICAR Directorate of Floriculture Research, Pune) (27/6/2021 and 4/7/2021) 7 Dr Nudrat Sayed Tree Plantation in Dev Bhumi (10/7/2021) 8 Talk on wild vegetables and their nutritional value by Ms Nilima Jorwar (9/8/2021) 13 The role of data management and representation in Environmnetal analysis Resourc e person Mr Rajit Sengupta Data journalist and communications trainer CSE (17/8/2021)</p>
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Key performance indicators

b. Zoology

S.no	Indicator	Pre-support	During /After Support	
1	No. of students admitted	Total = 382	Total = 362	
		M=198	F=264	
		SC ST OBC G SC ST OBC G	M =122 F=240	SC ST OBC G SC ST OBC G
		2 - 5 1 1 1 1 2 2 2 35 2 4 236	8 6 3	
2	No. of students passing out (%) Students Admitted/passing out (pass %)	90	100	
3	Drop-out rates	Nil	Nil	
4	No. of students opting for MSc	25	26 out of 47	
5	Average marks	A	A+	
6	No. of hands-on experiments being conducted	FY- 43 SY- 49 TY- 70	FY - 43 SY - 49 TY - 70	
7	No. of new experiments introduced	FY 2 S Y 2 T Y 2	FY - 2 online SY - 4 TY - 3	
8	Publications (scopus indexed) /patents, if any.	Nil	4	
9	Training received by faculty	1. Dr Bindu Achary and Prof Bhagirath Mishra in QR coding system for study of zoological specimen . 2. Workshop on flame photometry	Dr Geeta Joshi Workshop and training on Natural Products from Marine Bioresources under the aegis of CSIR integrated skill initiative 30-31 March, 2021 One week online training programme on statistical Data Analysis using SPSS software May 21-27 ,2021 Ms Sushma Singh and Dr Geeta Joshi Online short term course on Application of Statistics in Research 14-19 th June, 2021 conducted by RUSA HRDC University of	

			Mumbai. All faculty members received training in preparation of MOOCs in four quadrants
10	Exhibitions/seminars/training courses conducted	1 Summer training course on Basic Instrumentation April 22 to 28 , 2019 2 Intercollegiate Poster competition 2 Zoofest 13/12/2018	1. A two day intercollegiate workshop conducted on “ Morphological and Molecular classification “ collaborative departments Biotechnology and Zoology 9 th and 16 th January, 2021 Resource person Dr Siddhi Wadke BNHS and Dr Virupaksha Bastikar Amity University Molecular phylogenetics six colleges and 112 students participated. 2. One value added course on Basics of Conchology was conducted by the department May 2021 3
11	Books/journals subscribed from grants	Nil	Funds utilized by in previous financial year
12	Outreach activities (Popular lectures)	1. Dr Lalit Anande 7/8/2018 Tuberculosis 2. Dr S T Ingale Water conservation “ Paani Foundation” 2/7/2018 3. Mr Ninad Bhosale WCT wild life conservation 5/11/2018	Zoofest Intercollegiate pencil sketching competition 583 entries from various colleges e certificates were given to all participants and three finalists were given prizes 66 th Wild life week of India celebrated by a talk on “Amazing Animals” World wild life day celebrated on 3 rd March
13	Colleges mentored to apply for DBT Star College grants	--	---
14	Invited lectures	Mr Amit Patil Changan University, China on Career Opportunities in China Jan 4-10, 2019	1 World Mental Health Day Dr Ashish Deshpande (Psychiatrist) Discussion with students how to be mentally fit during COVID 19 Pandemic 10/10/2020

			<p>2. Dr Mrs Nandita Singh GMM college Bhiwandi Careers in Life Science 28/10/2020</p> <p>2. Dr Manoj Borkar 29/11/2020 Why Environment Education is important to save the planet</p> <p>3 Mr Anand Jagtap Former OSD Slum Sanitation Programme Municipal Corporation Greater Mumbai “ Sanitation conditions in Mumbai Risk Management” 19/12/2020</p> <p>4 Mr Shubham Khandekar (alumni) Poland and Mr Ankit Nayak (pursuing M Sc in Marine Biodiversity and Biotechnology from Scotland) gave a talk on career prospects in Zoology on 29/1/2021</p> <p>5 Dr Prathmesh Nagap and Dr Niraj Panjwani Preventive measures and monsoon related diseases (26/7/2021)</p>
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Key performance indicators

c. Chemistry

S.no	Indicator	Pre-support	During /After Support
1	No. of students admitted	Total = 717	Total = 681
		M= 307	F=410
		SC ST OBC G SC ST OBC G	S C ST OBC G SC ST OBC G
		7 8 292 1 8 401	5 1 5 308 3 12 347
2	No. of students passing out (%) Students Admitted/passing out (pass %)	80	100
3	Drop-out rates	Nil	Nil
4	No. of students opting for MSc	52	50 students out of 122
5	Average marks	A	A+
6	No. of hands-on experiments being conducted	F Y: 15 S Y: 40 T Y: 55	F Y : 17 online S Y : 48 T Y : 55
7	No. of new experiments introduced	F Y: 2 S Y : 2 T Y :2	F Y: 4 online S Y :4 T Y :4
8	Publications (scopus indexed) /patents, if any.		Four
9	Training received by faculty	1Dr Palak Chawla attended orientation program UGC HRDC Feb 2018	Four faculty members Dr Sandesh Diwekar Outcome based education and NABL accreditation 19 th Oct-23 rd October 2020 Interpretation of data resulted from material characterization 26 th Oct to 30 th Oct 2020

10	Exhibitions/seminars/training courses conducted	<p>Workshop organized on Green Laboratory Practices for S Y and TY June 21-27 , 2018 for all students and F Y July 26 to Aug 1, 2018</p> <p>Workshop on food color pesticide and clean campus 16/10/2018</p> <p>Workshop on safe handling of glassware Mr Omkar Borosil 13/7/2018</p> <p>5/3/2019 Careers in Science Dr Laxmi Ravishankar</p>	<p>1. workshops were organized on green chemistry, good laboratory practices and lab safety for all students of first, second and third year B Sc</p> <p>2. Value added course IT for Chemists</p> <p>3. Value added course Nanomaterials and Nanotechnology 14th June, 2021 to 19th June, 2021. 137 students completed the course successfully</p> <p>4 A virtual tour to Amul food factory 27/3/2021</p>
11	Books/journals subscribed from grants	-	Funds sanctioned for Book grant by DBT utilized in last financial year
12	Outreach activities (Popular lectures)	<p>CHEMBOND 12/12/2018</p> <p>Dr Vijay Dabolkar Guru Nanak College Importance of sharpening the soft skills in order to excel in the competitive world</p>	CHEMBOND activity to create awareness about chemistry in every day life. It is an year long activity
13	Colleges mentored to apply for DBT Star College grants	-	Nil
14	Invited Lectures	<p>Dr R K Vatsa BARC Fundamentals of Chemical Kinetics</p> <p>Dr Purav Badani University Dept of Chemistry, Mumbai Fundamentals of Quantum Chemistry 28/7/2018</p> <p>Dr S D Samant Prof of Chemistry ICT Univied picture of aldol and related reactions on 30/08/2018</p>	<p>1. Application of group theory to electronic structures Dr Suresh Pawar Asst. Prof University of Mumbai 26/3/2021</p> <p>2 Guest lecture by Dr Dilip Tripathi Senior Manager R&D Johnson and Johnson Understanding Pharmacopoeia 7/11/2020</p> <p>3 Dr Nandkishor Prof of Chemistry I I T Mumbai on Chemistry and our life 21/8/2021</p>

Key performance indicators

d. Physics

S.no	Indicator	Pre-support	During /After Support
1	No. of students admitted	Total =504	Total = 469
		M=288	F=216
		SC ST OBC G	SC ST OBC G
		2 5 281 1 6 209	3 1 5 285 2 3 170
2	No. of students passing out (%) Students Admitted/passing out (pass %)	85%	100%
3	Drop-out rates	Nil	Nil
4	No. of students opting for MSc		10 out of 30 students
5	Average marks	B grade	A grade
6	No. of hands-on experiments being conducted	FY 8 S Y 12 T Y 18	F Y 8 S Y 12 T Y 18
7	No. of new experiments introduced	F Y 2 S Y 2 T Y 2	F Y 2 S Y 2 T Y 2
8	Publications (scopus indexed) /patents, if any.	2	3
9	Training received by faculty	1. How to write a project report using LaTeX 19/10/2018 2 Use of Exp Eyes -17 13/12/2018 3 LaTeX workshop 25/1/2019	1Online workshop on “simulating Physics problems using Excel” April 19, 2021 Seven teachers were trained
10	Exhibitions/seminars/training courses conducted	PhysiTech 4 th and 5 th January, 2019 Seminar: Can the worlds energy demand be solved ? 12/2/2019 Resource person Prof R Ganesh Institute of Plasma research	1.Physictech 2. A workshop on virtual lab was conducted from 26-28 October, 2020 for S Y and T Y B Sc students 152 students attended and got trained. 3 Summer workshop in Physics was

		<p>GandhiNagar Mr Shirish Pathare HBCSE on Michelson Interferometer 7/1/2019 Dr Deepak More 9/1/2019 Superposition of waves using Octave Coupled oscillators and Curie temperature 26/2/2019 To measure speed of light in lab 26/2/2019 Exp-EYES kit 23/2/2019 Summer course 9-12 april 2019</p>	<p>conducted from 10-12th June, 2021 72 students participated 4 Alumni interaction was conducted online in the month of June, 2021 for creating awareness about what next after B Sc Physics Dr Nakul Karle University of Texas, Dr Nilesh Salke University of Illinois, Ms Ashwani Singh Medical Physicist and Mr Saurav Verma pursuing M Sc from JNU 5 Mr Jagdish Hande conducted workshop on Tinkercad and Multisim to enable students to perform electrical and electronic experiments on their mobile phones and laptops 6. Workshop on understanding of measurement by Mr Adwait Kulkarni</p>
11	Books/journals subscribed from grants		Already utilized in previous financial year
12	Outreach activities (Public lectures)	Dr Rekha Ghorpode worked as organizing committee member on behalf of IAPT Feb 24,2018. Resource person at	1 Dr Rekha Ghorpode a organizing committee member helped in the organization of lectures on behalf of IAPT
13	Colleges mentored for DBT Star college scheme	Nil	Nil
14	Invited Lectures	<p>June 3-15, 2019 1 Mahesh Shetti on computational Physics 2Dr Atul Mody on Quantum Mechanics 3Dr Devidas Gulwade on X Ray Diffraction and Crystallography 4Dr Poonam Agrawal on Waves and Oscillations Dr Sharad Chavan 25/2/2019 Linear Electronic accelerator and applications</p>	<p>Dr Amar Kakad (Indian Institute of Geomagnetism, New Panvel, Navi Mumbai delivered a talk on Plasma wave processes in the Earths Magnetosphere on 5th January, 2021</p>

10. Self-evaluation:

Sr. No.	*Objective (as stated in proposal)	% achieved	Quantitative metrics	Reasons for underachievement
Botany				
1	4 extra practicals were proposed for FY, SY and TY. 4 extra practicals were conducted for each class All experiments were redesigned and were carried out using online simulators or with the help of video recordings which teachers performed and recorded in the Laboratory	100%	1.5	In view of Pandemic objectives were modified and protocols had to be modified
2	Students were provided with mini projects as home labs	100%	2	completed as proposed
3	Interdepartmental project was online paper presentation which included students from all faculty	100%	2	Online
4	Faculty Improvement was achieved since all of our faculty members attended training programs and engaged academically and delivered lectures online	100%	2	All faculty members underwent training
5	Outreach activity- BOTANICA great success with school children visiting the exhibition	100%	2	Online mode with 120 students participating online
	Total	95%	9.5/10	95% of the proposed activities were carried out
Zoology				
1	4 extra practicals were proposed for FY, SY and TY. 4 extra practicals were conducted for each class	100%	2	Online
2	4 projects were proposed.	100%	2	Online
3	Interdisciplinary projects could not be completed.	0%	0	It could not be completed because of COVID-19
4	Faculty Improvement was achieved since all faculty members attended various training programs	100%	2	Online mode
5	Out reach activity ZOOfest. Awareness	100%	2	Online mode

	among school children about conservation of snake			
	Total	80%	8/10	80% of the proposed activities were carried out
Chemistry				
1	New practicals proposed for each class was successfully done	100%	2	Online
2	10 projects was proposed and all were completed	100%	2	Online
3	Interdisciplinary project proposed was completed but due to lockdown one project was not completed	95%	1.5	Lab was closed due to lockdown
4	Faculty Improvement was achieved since all our faculty members attended various training programs	100%	2	Online
5	Outreach activities conducted- Chem Bond, promotion of green chemistry, safety in laboratories	100%	2	Online
	Total	95%	9.5/10	95 % of the proposed activities were carried out
Physics				
1	New practicals proposed at every level was successfully completed by redesigning with online simulators and video recordings	100%	2	Online mode
2	10 mini projects were proposed and successfully completed	100%	2	Online mode
3	Interdisciplinary presentation proposed and completed	95%	1.5	Online mode
4	Faculty improvement was successfully achieved all faculty members attended various training programmes	100%	2	Online mode
5	Out reach activities conducted Physitech , experiments showcased to generate to expose students to the fascinating field of physics	100%	2	Online mode
	Total	99%	9.5/10	

Dr Himanshu Dawda

