

DBT Star Second Year Progress Report (2020-21)

Submitted by

HVPS's

RAMNIRANJAN JHUNJHUNWALA COLLEGE OF ARTS,

SCIENCE AND COMMERCE (Autonomous)

GHATKOPAR (W), MUMBAI 400 086

Submitted to

Department of Biotechnology

Ministry of Science & Technology

New Delhi 110003

Hindi Vidya Prachar Samiti's

RAMNIRANJAN JHUNJHUNWALA COLLEGE

DBT Star Second Year Progress Report (2020-21)

1. Name of the College : HVPS's 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 Rachana Acharya
<i>Designation</i>	Assistant Professor
<i>Address</i>	Department of Biotechnology, Ramniranjan Jhunjunwala College, Ghatkopar (W)
<i>Phone No</i>	022 25152731 Ext: 223, 9869331700, 8779036514
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3. Assessment duration : 1/04/2020 to 31/03/2021

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 =32	
01.	Biotechnology	B.Sc, M.Sc, PG Diploma in Clinical Research, PG Diploma Regulatory Affairs	5	3
02.	Mathematics and Statistics	B.Sc.	1	7
03.	Information Technology and Computer Science	B.Sc. & M.Sc.	0	16

5. Number & Date of Advisory committee meeting:

No Advisory Meeting conducted.

Advisory committee formed as follows

a) Principal - Chairman- Dr. Himanshu Dawda

b) DBT Representatives - 1. Adviser, DBT , 2. Programme Officer, Star College Scheme

c) External Experts - Members

Sr. No	Name	Company / University	Department
1	Dr Arpita Gupte	D.Y. Patil University	Biotechnology
2	Ms Pratima Parab	Vodafone India Ltd	Statistics
3	Dr. Rajeshwar Andhale	Ruia College	Maths
4	Prof. Archana Pai	VJTI College	Information Technology
5	Prof. Suchita Bhoavar	SNDT College	Computer Science

d) Faculty Members from each department

e) Coordinator - Member- Secretary Dr. Rachana Acharya

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

Due to the ongoing Covid-19 pandemic all the teaching learning was done using online mode, where the lectures were conducted on Zoom or Google meet and notes and assignments were given using Google classroom app. In Spite of the online teaching learning several co-curricular, extra activities were conducted to keep the students' spirit high and keep them interested in research and innovation activities.

In the subject of IT and CS, options were sought to perform the practicals online. Different virtual laboratories, online compilers, mobile apps were explored and practicals were designed in many topics, so that students are not deprived of hands-on learning experience.

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

1. The Department of Biotechnology organized a **Career guidance** lecture series by our **alumni** on an online platform '**Anubhav ke Bol**'. Alumni from India and abroad guided our UG students regarding various career options after graduation.
2. The Department of Biotechnology conducted **Value added courses** on topics such as 'COVID-19 Pandemic', 'Clinical Research' and 'Personality Development'.
3. The Department of Biotechnology conducted outreach sessions on '**Careers in Biology**' for students of 9th, 10th, 11th and 12th class of Guru Nanak High School.
4. Our **Mentor college**, National Institute of Biomedical Genomics, Kalyani, invited us for their programs under Science Setu. The first program was Institute Day which was held on 23rd February 2021 virtually.

Under the Scheme of “Azadi ka Amrut Mahotsav” celebrating 75 years of Indian Independence, ‘Science Setu’ in collaboration with NIBMG had organized a webinar entitled “Genomics of RARE congenital disorders: Challenges & Achievements” on 28th May 2021. These sessions were attended by the staff members and undergraduate students from the Department of Biotechnology using the youtube link provided by them.

5. The Department of IT conducted a detailed **training program** on Block chain technology and a short term training program on Artificial Intelligence.
6. The Department of Mathematics will be conducting a **certificate course** on C-Programming.
7. Established local chapter for NPTEL online courses delivered by IIT’s can be availed by staff and students.
8. The Department of Computer Science conducted a **value added course** of 35 hours on topics “R programming, IoT & Arduino, Computer graphics and Robotics”
9. The Department of Statistics conducted a **three-day workshop** on ‘Introduction to LaTeX Software’.
10. The Department of Statistics conducted an online **Value added course** in ‘Data Analytics Using R Software’.
11. The Department of Statistics conducted a **Two day online Course in Excel**. (For FYBSc students)

Activities planned for the academic year 2021-22.

1. The Department of Biotechnology is planning to conduct online **Value added course** on following topics
 - Fermentation Foods and Beverages
 - Basics of Bioinformatics
 - Methods in Molecular Biology
2. The SY students of the Department of Biotechnology are planning to do a project using survey based statistical analysis on COVID-19 Vaccination issues.

8. Lessons learnt / difficulties faced/suggestions if any, in implementation of the programme and utilization of DBT grant. (Max 3 points within 300 words).

Grant for FY 2020-21 was not received since documents such as NIL UC/SE and Assets certificate for FY-2020-21 were not submitted by us. We will henceforth see to it that all required documents would be submitted by us in time.

9. Key performance indicators

BIOTECHNOLOGY:

S.no	Indicator	Pre-support (18-19)								During /After Support (20-21)								Remarks
1	No. of students admitted	Total =179								Total = 204								
		M=45				F=135				M=57				F=147				
		SC	ST	OBC	G	SC	ST	OBC	G	SC	ST	OBC	G	SC	ST	OBC	G	
		2	0	6	37	8	0	17	105	1	1	5	50	5	5	10	127	

2	No. of students passing out (%) Students Admitted/ passing out (pass %)	FY - 68/70 SY - 53/57 TY - 53/53	FY = 70/ 70 SY = 68/68 TY = 65/65	
3	Drop-out rates	-	FY to SY - 4.4% (3 out of 68) SY to TY - 1.5% (1 out of 66)	
4	No. of students opting for MSc	20 out of 53	30 out of 53 (19-20 batch)	
5	Average marks	-	Average marks of TY students for 2019-20 batch is 688.862 out 800 marks Average marks of TY students for 2020-2021 batch is 684.63 out 800 marks	
6	No. of hands-on experiments being conducted	FY- 46 SY- 37 TY- 57	FY- 54 SY- 40 + 1 (extra prac) Extra practical in Bioinformatics using online tool Uniprot TY- 66 Students were introduced to a novel Smartphone App: Labster where the students can perform various biotech practicals on a virtual platform. Existing practicals were conducted online and sharing the video recording of that practical conducted by 2/ 3 students in the laboratory under the guidance of a teacher	
7	No. of new experiments introduced	-	FY students carried out a mini home project 'Extraction of gDNA from fruits/vegetables' . Students made videos or ppts of the process of gDNA extraction from plant source and uploaded on Google classroom Students of TY biotech carried out a home project 'Effect of Stress on plant growth' Students studied the effect of salt stress, sunlight stress, sterilization of soil on the germination and growth parameters of mustard, wheat or methi plants. They also	12 Students 8 students

			carried out statistical analysis of their results in collaboration with Department of Statistics TY students . They presented their project outcomes in an online project presentation event Anusandhan held on a virtual platform in the college.	
8	Publications (scopus indexed) /patents, if any.		<p>-Dr. Rachana Acharya published a review article on ‘Role of Complement pathway in Covid-19 infection and potential treatment strategies’ in World Journal of Pharmaceutical Research.</p> <p>-Ms. Smita Jadhav presented Poster on “Effect of agro-organic waste formulations on germination of <i>Triticum aestivum</i> and <i>Brassica nigra</i>” in the Indian Phytopathological Society National e-Conference “Plant Health and Food Security: Challenges and Opportunities”, ICAR-IARI, New Delhi; from 25th to 27th March, 2021.</p>	
9	Training received by faculty	<p>- Dr. Tania Karipel and Ms. Smita Jadhav attended a workshop on e content development using Moodle organized by IQAC and IT department of our college on 1st Sep 2018.</p> <p>- Dr. Rachana Acharya attended workshop on Google classroom – How to use for assignments for students organized by department of IT, RJ college on 13th February 2019.</p> <p>- Ms. Saleha Khan attended a 3-day workshop (27th– 29th Sep 2018) at Xavier’s College (autonomous) on Phylogenetics: principles and practice, workshop for life science faculty.</p> <p>- Prof. Saleha participated in DBT- BTIS Workshop on ‘Molecular profiling to target Identification’ organized</p>	<p>FDPs attended-</p> <p>Dr. Sucheta Golwalkar- “Reigniting the Research Spark: Exploring new methodologies and perspectives”</p> <p>Dr. Smruti Thombre - ‘Online teaching and E-content’</p> <p>Dr. Tania Karipel -</p> <p>i. ‘Online teaching and E-content’</p> <p>ii. “Reigniting the Research Spark: Exploring new methodologies and perspectives”</p> <p>iii. ‘Artificial Intelligence in Health Sciences’</p> <p>Dr. Rachana Acharya -</p> <p>i. ICT Tools for online learning</p> <p>ii. Innovation, IPR and Entrepreneurship</p> <p>iii. Online Teaching and E-content development</p> <p>Ms. Saleha Khan- “Biochemical Principles of Energy Metabolism”</p> <p>Dr. Namrata Parab-</p> <p>i. Contemporary Strategies for teaching and assessment</p> <p>ii. Online Teaching and E-content development</p> <p>iii. ‘Artificial Intelligence in Health Sciences’</p> <p>Ms. Smita Jadhav-</p>	

		ACTREC, Kharghar on Bioinformatics between 20 – 22 Feb 2019.	<p>i.FDP on Precision Medicine</p> <p>ii.“Advance Tools & Techniques in Biotechnology for Startup Ecosystem Development</p> <p>Ms. Jasvinder Kaushal-</p> <p>i.“Reigniting the Research Spark: Exploring new methodologies and perspectives”</p> <p>ii.Recent Advances in Structural Bioinformatics (OSTC-RASB)</p> <p>iii. ‘Artificial Intelligence in Health Sciences’</p>	
10	Exhibitions/seminars/training courses conducted	1. Seminar on D.O.S.E. of Happiness on 16 th February 2019	<p>1. Online Value added course (VAC) on Covid19 infection, prevention & treatment</p> <p>2. Online VAC on Clinical Research Methodologies</p> <p>3. Online Value added course (VAC) on Personality Development in association with NGO “Bright Future”. Duration - 3 months (25th July 2020 - 30th Oct 2020) .</p> <p>4. Inter Collegiate Online workshop on Morphological and Molecular Phylogeny, in collaboration with Department of Zoology</p> <p>5. Workshop on ‘Deriving career goals’ for SY and TY Bt students., conducted on 25th May 2021</p>	<p>Beneficiaries</p> <p>36</p> <p>80</p> <p>41</p> <p>54</p> <p>75</p>
11	Books/journals subscribed from grants	<p>1. Kubly Immunology 7th edition (2013) by Judy Owen, Jenni Punt, Sharon Stranford</p> <p>2. Campbell Biology 10th Edition (2018) by Jane B. Reece, Lisa A. Urry</p>	<p>1. A crack in creation - by J. Doudna & S. Sternberg</p> <p>2. The immortal life of Henrietta Lacks by Rebecca Skloot</p>	
12	Outreach activities (Popular lectures)	Genopsis- Intra-department festival	<p>i.. Careers in Biology - 10th and 12th Students of Guru Nanak High School on 23rd October 2020, 250 students participated in the webinar.</p> <p>ii. Intra College Online Video Bytes Competition on Female Nobel Laureates. 25th January 2021, Guest of honour Dr. Tara Menon.</p> <p>iii. Virtual tour</p> <ul style="list-style-type: none"> ● ACTREC on 31st December 2020 ● NIBMG on 23rd Feb 2021 <p>iv. RJC popular lecture in association with college following lectures were conducted</p> <p>1. Webinar: ‘Covid- Facts and</p>	<p>250 school students</p> <p>20 participants</p> <p>120</p>

			<p>misconceptions' by Prof. Sivan on 11/05/2020.</p> <p>2. Webinar: 'Research and development action roadmap to prevent epidemic with special mention to coronavirus infection' by Dr. Sanjay Mehendale on 22/05/2020.</p> <p>v. Popular lecture series Gyan Vigyan - following lectures were conducted</p> <ol style="list-style-type: none"> 1. Career Guidance - Mr. Niketan Taware (22nd July 2020) 2. Future Look ahead with optimism - Dr. Poornima (31st July 2020) 3. Sustainable Development - Ms. Manashree Shejwalkar (8th August 2020) 4. Genetic counseling Webinar - Ms. Pooja Ramchandran (24th August 2020) 5. Career Guidance for FYBT - Ms. Haripriya Parthasarathy and Ms. Divya Upadhyay (5th sep 2020) 6. Webinar: 'Corona Vaccination Awareness' by Dr. Sanjay Oak on 15/02/21. <p>vi. Geneopsis intercollegiate fest was organized using online modes with 3 events viz. Poster competition, Slow motion video making competition and Biomeme competition. Students collected entries from 10th Nov 2020 to 21st Nov 2020 and the results were declared on 15th Dec 2020</p>	<p>90</p> <p>On an average 90 students attended each lecture</p> <p>67 students from 11 colleges</p>
13	Colleges mentored to apply for DBT Star College grants	Nil	Nil	
14	Invited lectures	<ol style="list-style-type: none"> 1. Mr. Amit Mere 2. Dr Archana Shirpurkar 3. Mr. Saiprasad Vengurlekar 4. Mr. Subodh Chavhan 5. Ms. Lipi Das 	<ol style="list-style-type: none"> 1. Dr. Usha Mukundan 2. Dr. Archana Shirpurkar 3. Mr. Yogi Joshi 4. Dr. Karishma Rajbar 5. Dr. Mugdha Apte 6. Ms. Surekha Balasubramanian 7. Ms. Ami Vora 8. Ms. Fatma Islahi 9. Prof Selvi 10. Prof. Jeba Roselet 	

Maths And Stats:

S.no	Indicator	Pre-support (2018-19)	During /After Support (2020-21) (TY Data)	Remarks														
1	No. of students admitted	Total = 823								Total =91								
		M=390				F=433				M=61				F=30				
		SC	ST	OBC	G	SC	ST	OBC	G	SC	ST	OBC	G	SC	ST	OBC	G	
		26	1	37	325	23	2	40	340	2	0	2	57	0	0	1	29	
2	No. of students passing out (%) Students Admitted/ passing out (pass %)	-								--								
3	Drop-out rates	-								--								
4	No. of students opting for MSc	10+15								11(maths)+10(stats) (19-20 batch)								
5	Average marks									Mathematics Average marks of TY students for 2019- 20 batch is 650.1 out 800 marks Average marks of TY students for 2020-2021 batch is 669.1 out 800 marks Statistics Average marks of TY students for 2019- 20 batch is 613.6562 out 800 marks Average marks of TY students for 2020-2021 batch is 606.8135 out 800 marks								
6	No. of hands-on experiments being conducted	FY- 24 + 23 SY- 36 + 36 TY- 48 + 46 + 24(applied comp)								FY- 24+23 SY- 36 +36 TY- 48+46+24 Existing practicals were conducted smoothly in online sessions.								

7	No. of new experiments introduced	NIL	<ol style="list-style-type: none"> 1. FYBSc <ul style="list-style-type: none"> ● Linear regression analysis using Excel software ● Forecasting using Exponential Smoothing ● Plotting Taylor Polynomials through graphing calculators 2. SYBSc <ul style="list-style-type: none"> ● Control Charts (C and P) ● RBD with ‘m’ observations per cell ● Plotting Slope Fields of first order differential equations through GeoGebra 3. TYBSc <ul style="list-style-type: none"> ● Friedman Two way ANOVA by Ranks Test ● Mortality Rates ● Identifying topologically equivalent digits and alphabets 	
8	Publications (scopus indexed) /patents, if any.	<ol style="list-style-type: none"> 1. Dr. Sanket Tikare published a research paper entitled 'Generalized first order dynamic equations on time scales with Δ-Caratheodory functions' in Differential Equations & Applications, Vol. 11. Issue 1, (2019), pp 167-182. 	<ol style="list-style-type: none"> 1. Dr. Sanket Tikare published a research paper entitled <i>Nonlinear Dynamic Equations on Time Scales with Impulses and Nonlocal Conditions</i> in the journal 'Journal of Classical Analysis' Vol. 16, Issue 2 (2020), pp-125–140.(This is collaborative work with Prof. Christopher C. Tisdell, School of Mathematics and Statistics, The University of New South Wales, Sydney, Australia) 2. Mr. Rahul Tiwari published a research paper entitled <i>A statistical study on the effect of Coach Leadership on the performance of sports students in colleges. IRJMSH Vol 12 Issue 4 [Year 2021] ISSN 2277 – 9809.</i> 3. Mr. Rahul Tiwari published a Multidisciplinary E National conference entitled <i>A Statistical Survey on Effectiveness of Online teaching on College Teachers During COVID - 19 in Mumbai Region.</i> By Maharashtra College on 5th April, 2021 	
9	Training received by faculty	<ol style="list-style-type: none"> 1. Dr. Sanket Tikare attended a refresher course from 4th July, 2018 to 24th July, 2018. 2. Dr Sanket Tikare, prof. Ajaykumar Shukla, Mr. Rahul Tiwari attended a half day workshop on E-content development using Moodle jointly 	<p>Mrs. Chhaya Pinge attended</p> <ul style="list-style-type: none"> ● Two days National Level Webinar on 'E content Development' organised by IQAC and Department of Information Technology, S. M. Shetty College of Science, Commerce and Management Studies, from June 6 to June 7, 2020. ● A webinar on 'Memory Secrets for teachers' organised by IQAC , M. L. Dahanukar College of Commerce, on Monday, June 15, 2020. 	

		<p>organized by IQAC and IT Department on 1st Sept , 2018.</p> <p>3. Mr. Ajaykumar Shukla attended the orientation programme held at Central University, Hyderabad, from 13th Feb, 2019 to 12th March, 2019.</p> <p>4. Mrs. Chhaya Pinge, Mr. Rahul Tiwari, Mr. Jayshankar Singh attended a two days workshop on National Seminar on Recent Development in Statistics at Kalina University, Department of Statistics on 22 and 23rd March, 2019.</p> <p>5. Mrs. ChhayaPinge, Mr. Rahul Tiwari, Mr. Jayshankar Singh attended a one day workshop on revised syllabus of T.Y.B.Sc and T.Y.B.A, Statistics and Operation Research (Applied Component) organized by Kishinchand Chellaram College(K.C), Churchgate on August 2, 2018.</p> <p>6. Mrs. Chhaya Pinge attended National seminar on ‘Understanding Clinical and Role of Statistics in Clinical trials’ on 19th Jan 2019 at SIES college.</p> <p>7. Mr. Rahul Tiwari attended a one day workshop one content development using Moodle organized by R.J. college, Ghatkopar on September 1, 2018.</p> <p>8. Mr. Rahul Tiwari attended a two days workshop for Faculty development Program on Data Analysis with ‘R’,</p>	<ul style="list-style-type: none"> ● A webinar on 'Tools for Teaching Online' organised by Academisthan from 28th June to 30th June 2020. ● A webinar on 'Six Sigma Green Belt Awareness Program' organised by National Institution for Quality and Reliability (NIQR) Vishwakarma University, Pune on Saturday, November 28, 2020. ● Two days National Webinar on 'NAAC Accreditation, A First step towards achieving Excellence in Quality Education' organised by IQAC, Ramniranjan Jhunjhunwala College, from January 16 to January17, 2021. <p>Mr. Rahul Tiwari attended</p> <ul style="list-style-type: none"> ● “Developing Effective Writing and Speaking Skills”, BIT INSTITUTE OF TECHNOLOGY, Department of Humanities and Sciences, HINDUPUR on Aug 05- Aug 06, 2020. ● FDP on Flipped Classroom, Anjunam I Islam's Kalsekar Technical Campus,School of pharmacy,Thane on August 15, 2020 ● E-learning for effective teaching, Prabhat Kumar College,Department of Teacher's Training(B.Ed.) with Collaboration with EDFLY,Contai on July 11,2020. ● Roles of Statistics in COVID-19, Balwant College,Department of Statistics, Sangli on July 17, 2020 ● STATE LEVEL CAPACITY BUILDING WORKSHOP FOR TEACHING AND SUPPORTING STAFF, R.J.College,IQAC, Participant, on April 6, 2021 ● Teaching Statistics using Case Study Approach, Brindavan College, Statistics, Bangalore on July 14 2020. ● Two days National Webinar on "NAAC Accreditation, A First step towards achieving Excellence in Quality Education", IQAC, Ramniranjan Jhunjhunwala College, from January 16 to January17, 2021. <p>Dr. Sanket Tikare</p> <ul style="list-style-type: none"> ● one week online FDP on Mathematics: A Practical Approach in Science and Technology ● one week International Online Faculty 	
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		<p>Python and SPSS organized by Sasmira's Institute of Commerce and Science on January 18 and 19, 2019.</p> <p>9. Mr. Rahul Tiwari attended the Orientation programme organized by Mumbai University from 1 Feb to 28 Feb 2019.</p>	<p>Development Program on Mathematical Sciences</p> <ul style="list-style-type: none"> ● one week Online Faculty Development Program on Recent Advances in Mathematics and Statistics ● One Week Short Term Training Program on Solutions of Differential equations and Its Applications <p>Mr. Ajaykumar Shukla</p> <ul style="list-style-type: none"> ● one week online FDP on Open Source Tools for Research ● 3-day online short term training programme on "Latex" ● online one-week short term course on Symmetry in Science and Engineering 	
10	Exhibitions/seminars/training courses conducted	A training program 'Intermediate R Programming'.	<ol style="list-style-type: none"> 1. Presentation of classic research papers (No. of presentations = 2 Stats +1 Maths) 2. 'Something Extra', (An Intra collegiate based on topics out of syllabus for SYBCs Students. 3. An Intra collegiate Poster Competition for FYBSc Students. 4. A Three-day workshop on 'Introduction to LaTeX'. 5. A value added course on 'Data Analytics Using R Software' 6. Two day online Course in Excel (for FYBSc Students) 7. 3-day workshop on "Historical development of Mathematics" 8. A value added course in C-programming 9. Seminars by students on advanced topics 	191 72 2
11	Books/journals subscribed from grants		Nil	
12	Outreach activities (Popular lectures)	<ol style="list-style-type: none"> 1. An intercollegiate seminar competition on "Applications of Mathematics in Life Sciences" 2. Visit to NSSO on account of National Statistics Day on 29th June 2018. 	<ol style="list-style-type: none"> 1. Presentation on Dr. C. R. Rao on his centenary birthday. 2. 4 projects completed by 8 students under survey on effectiveness of Online Teaching on teachers' / Students' data (Jr. College /Degree College). They presented their project outcomes in an online project presentation event Anusandhan held on a virtual platform in the college. 3. 2 Students of TYBSc (Statistics) worked and 	

			<p>carried out the Statistical analysis of the project 'Effect of Stress on plant growth' in collaboration with the Department of Biotechnology TY students. They presented their project outcomes in an online project presentation event Anusandhan held on a virtual platform in the college.</p> <p>4. 6 Students (1 from FYBSc, 1 from SYBSc and 4 from TYBSc) (Statistics) worked and carried out the Statistical analysis of the project 'Normal to Digital life Due to Covid 19' and 'Impact of Covid 19 on Students'. Both projects are awarded in Intercollegiate competition.</p> <p>5. 'Visual Storytelling', An Intercollegiate PPT Competition.</p> <p>6. 'Statistika' Annual Festival.</p> <p>7. Intercollegiate seminar competition on "Applications of Mathematics in Music, Sports & Entertainment"</p> <p>8. Departmental Fest "MatheMagica"- events: poster competition, mathematical photography, mathematical models</p>	10 colleges 120 Junior & Degree college
13	Colleges mentored to apply for DBT Star College grants	Nil	
14	Invited lectures	<p>1. Mr. Cyril Georgeson 2. Dr. S R Chaudhari 3. Dr. Tathagat Sen Gupta 4. Prof. Bhushan Arekar 5. Ms. Pratima Parab</p>	<p>1. 'Role of Statistics in managing health Crises / Pandemics' by Mr. Ajay Phatak on May 18, 2020</p> <p>2. 'Applications of ANOVA in Pharmaceutical Industry' by Dr. C. P. Bapat on September 9, 2020.</p> <p>3. 'Career Planning : The why, How and What' by Mr. Gerald Aranha on January 9, 2021</p> <p>4. 'Role of Biostatistician and Job opportunity' by Dr. Rita Abbi on March 27, 2021</p> <p>5. Boot Camp on 'Digital Marketing' by Mr. Pratik Hinduja on March 31, 2021</p> <p>6. A talk on symmetry by Dr Rahul D. Kitture,</p>	

			IIT-Jammu 7. Talk on <i>An Introduction to the Theory of Partitions</i> by Dr. Atul Dixit, IIT-Gandhinagar 8. Talk on <i>An Introduction to Discrete Dynamical Systems</i> by Dr. Sachinkumar Bhalekar, University of Hyderabad 9. A talk on <i>Career in Mathematics</i> by Dr Kishor Kucche, Shivaji University, Kolhapur	
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IT & CS:

S.no	Indicator	Pre-support								During /After Support								Remarks
1	No. of students admitted	Total = 466								Total =501								
		M= 332				F= 134				M=350				F=151				
		S	ST	OB	G	SC	S	OBC	G	SC	ST	OBC	G	SC	S	OBC	G	
		8	0	16	304	4	0	9	120	13	0	25	311	6	0	17	128	
2	No. of students passing out (%) Students Admitted/ passing out (pass %)									FYIT - 52/55 (95%) SYIT - 52/58 (90%) TYIT - 66/67 (99%) FYCS - 100/104 (96.15%) SYCS - 90/105 (85.71%) TYCS - 77/77 (100%)								
3	Drop-out rates									IT - FY - SY (6 students) (8 %) SY - TY (3 students) (5 %) CS - FY - SY (1 student) (1%) SY - TY (2 students) (2%)								
4	No. of students opting for MSc									IT - 15 out of 56 CS - 23 out of 76								
5	Average marks									TYIT(2019-2020)Avg- 624.22/850 TYIT(2020-2021)Avg- 651.13/850								

6	No. of hands-on experiments being conducted	FY IT - 45 SY IT - 45 TY IT - 45 FY CS - 66 SY CS - 66 TY CS - 65	IT FYBSc - 55 SYBSc - 60 TYBSc - 50 CS FYBSc - 66 SYBSc - 66 TYBSc - 65 (Using Virtual labs / simulators / Online Compilers / Mobile apps)	
7	No. of new experiments introduced	FY IT - 4 SY IT - 6 TY IT - 5 FY CS - 6 SY CS - 6 TY CS - 5	IT SYBSc - 8 SYIT(using MIT App inventor, tinkercad) TYBSc - 6 (Using Selenium, AutoIT) CS FYBSc - 2 Fycs sem 2 Data Structure 1. Implementation of insertion sort algorithm. 2. Implementation of doubly linked list CS SYBSc -2 SY SEM 4 Android 1) How to run an android application on AVD manager and on an android device. 2) How to write Script in selenium webdriver CS TYBSc - 12 TY SEM 5 Artificial Intelligence 1) Write a program to implement Genetic Algorithm using DEAP python library (Evolve population by using operation: Selection, Crossover, Mutation 2)Write a program to perform sentimental analysis on tweets using pandas and vaderSentiment. TY SEM 5 Information and Network Security 1)Write a program to calculate HMAC-SHA1 signature 2)Write a program to implement SSL. TY SEM 5 Web Services 1) Designing and importing python web services. 2) Importing web services to PHP TY SEM 5 Software testing and quality assurance 1) How to write Script in selenium web driver. TY SEM 6 WSN and mobile communication	

			<p>1) Create MAC protocol simulation implementation for wireless sensor network.</p> <p>Tycs sem 6 Cloud Computing Evaluate the functionality of VDI using Foss server.</p> <p>TY SEM 6 Data Science 1) Practical of Principle Component Analysis. 2) Practical of Support Vector Machine.</p> <p>TY SEM 6 Ethical hacking 1) Network scanning and vulnerability analysis for system hacking using different tools.</p>	
8	Publications (scopus indexed) /patents, if any.	<p>- Prof Anita Gaikwad published book titled "Linux" with ISBN 978-93-89460-69-8 under Techneo publication</p> <p>- Prof Vaidehi Deshpande published book titled "Operating System" with ISBN 978-93-89251-62-3 under Techneo publication</p> <p>- Prof Vaidehi Deshpande published book titled "Fundamentals of Algorithm" with ISBN 978-93-89460-75-9 under Techneo publication</p> <p>- Prof TejasweePol published book titled "Artificial Intelligence" with ISBN 978-93-89180-15-2 under Techneo publication</p> <p>- Prof TejasweePol published book titled "Data Science" with ISBN 978-93-89460-78-0 under Techneo publication</p>	<p>Prof Anita Gaikwad from department of Computer Sci published a paper titled "A Study Of Women Contribution Towards Indian Economy Using Multiple Linear Regression Analysis" in UGC care listed Journal Shodhsarita in Virtual National Conference on Management & Technology (NCMAT 2021) on the theme Leveraging Technologies & Management Skills To Improve Economy During 'New Normal' on 6th March 2021</p>	

9	Training received by faculty	<p>→ MsTejaswee Pol attended Refresher course on Data Science and Artificial Intelligence at S K Somaiya College from 2nd May to 15th May 2019</p> <p>→ Ms Bharati Bhole attended One day workshop on “Data Organisation in Revised Accreditation Framework of NAAC” organized by IQAC, Vidyalkar Institute of Technology, Mumbai on June 26, 2019</p> <p>→ MsJebaRoselet, Prachi Surve, Priyanka Gavhane and Saba Shaikh attended a Faculty development program in “Data Analytics” organized by Imarticus Learning in association with Skill India in association with National skill development corporation on August 30 & 31, 2019</p> <p>→ Ms Priyanka Gavhane completed 8 Week NPTEL FDP Course on “Programming,Data Structures and Algorithm Using Python” in the duration of 29th July 2019 to 20th Sept 2019</p>	<p>Training Programs Attended:</p> <p>IT</p> <p>Ms. Archana Bhide</p> <ol style="list-style-type: none"> 1. Refresher course in “Robotics & IOT” conducted by UGC and RUSA organized by MCC from 8/2/2021 to 20/2/2021 2. Attended an industrial workshop in “Bootstrap 4” organized by Suven Consultants and technologies pvt ltd from 17/10/2020 to 19/10/2020. 3. “A bootcamp on AI, ML and AI chatbots” organized by KC college, in association with UDIT from 22/6/2020 to 27/6/2020 <p>Ms . Bharati Bhole</p> <ol style="list-style-type: none"> 1. 5 Day FDP on “Evolution from Offline to Online Teaching” organized by Satish Pradhan Dnyansadhana College, Thane in Association with Yashwantrao Chavan Maharashtra Open University, Mumbai Regional Centre and Microsoft from 30/05/2020 to 03/06/2020 2. One Week Faculty Development on “Curriculum Design and Pedagogy” organized by Sangamner Nagarpalika Arts, D. J. Malpani Commerce and B. N. Sarda Science College (Autonomous) Sangamner in Association with RUSA and TISS from 22/02/2021 to 27/02/2021 3. 6 Day FDP on “Machine Learning: Research and Practices” organized by Department of Computer Science, Mumbai University, in association with TES’s SK College of Science and Commerce from 03/06/2020 to 08/06/2020 <p>Ms. Jeba Roselet</p> <ol style="list-style-type: none"> 1. FDP on “Emerging Technologies of Fourth Industrial Revolution (4IR):A Practical Approach to Theoretical Conversion” organized by SRM Institute of Science and Technology,Chennai from 29/6/2020 to 4/7/2020. 2. Completed a 12 week certificate course in “Developing Android Apps with App Inventor” by coursera, registered by RJ College on 12/7//2020 	1
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	<p>→ Ms Archana Bhide and Vaidehi Deshpande attended a National shortterm training Programme in “IOT” organized by DES’s Navinchandra Mehta Institute of Technology and Development in collaboration with EduxLabs, Gurugram in association with NSSIIT Roorkee from September 16 to September 20, 2019</p> <p>→ MsPunam Sindhu completed an online NPTEL course in “Software Project Management” in the duration of July to October 2019.</p> <p>→ Ms Bharati Bhole, Ms Archana Bhide, MsJebaRoselet, Ms Prachi Surve, Ms Punam Sidnhu, MsPriyasha Sawant, MsVaidehi Deshpande, Ms Priyanka Gavhane andMs Aditi Prajapati attended a two day Faculty Development Program in Machine Learning conducted by Department of IT, R. J. College on November 21 and 22, 2019</p> <p>→ Ms Bharati Bhole, MsJebaRoselet, MsPunam Sindhu,</p>	<p>3. Attended a two Day Webinar series on Research in IT - A Tailored approach towards Cloud Computing organized by Sir Sitaram and Lady Shantabai Patkar College of Arts and Science and and V. P. Varde College of Commerce & Economics on 19/3/2021 and 20/3/2021.</p> <p>Ms. Prachi Surve</p> <ol style="list-style-type: none"> 1. Attended an FDP on “Full Stack Development” organized by Bharati Vidyapith’s Institute of Management and Information technology, Association with Folslipty C.S. from 1/6/2020 to 4/6/2020 2. Completed 3 independent courses in “AWS Fundamentals” by coursera, registered by RJ college in May 2020 and June 2020. <p>Ms Punam Sindhu</p> <ol style="list-style-type: none"> 1. Attended a 2 Days FDP on Online Teaching and E- Content organized by IIDE from 3/6/2020 to 4/6/2020. 2. Attended a Six Days FDP titled - ‘Reigniting the Research-Spark’ organized by St. Xavier’s College, Mumbai under the aegis of RUSA from 15/3/2021 to 20/3/2021. <p>Ms Priyasha Sawant</p> <ol style="list-style-type: none"> 1. Attended a seminar on “Character animation” organized by S.S.T College of Arts & Commerce, Ulhasnagar-4 on 5/3/2021 <p>Ms Aditi Prajapati</p> <ol style="list-style-type: none"> 1. Attended Six Days FDP on “Machine Learning: Research and Practices” organized by Department of CS - University of Mumbai and SK College of Science and Commerce from 3/6/2020 to 8/6/2020 2. Attended a National level webinar on Guidance for NTA UGC NET/ MH-SET Paper II Computer Science and Application organized by Maharashtra College of Arts, Science and Commerce on 9/6/2020 3. Completed a certificate course in “AI for everyone” from coursera registered by RJ College, on 28/8/2020. <p>CS</p> <p>Prof Anita Gaikwad</p> <ol style="list-style-type: none"> 1. 6 days FDP on “Current Trends & Future Technologies in Computing” organised by Usha Pravin Gandhi College in association with UDIT, University of Mumbai from 8th May to 13th May 2020 2. 5 days FDP on “Data Science” organised by Department of Computer 	
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	<p>MsPriyasha Sawant, Ms Anita Gaikwad, MsVaidehi Deshpande, Ms Vinita Singh, Ms Priyanka Gavhane, MsNilamPatade, Ms Saba Shaikh, Ms Pooja Khushwaha and Ms Aditi Prajapati attended a four day short term training program on “Block chain and its Applications” from 26 February to 29 February 2020. The program was organized by the department of IT & CS in association with BlockLogypvt Ltd. → MsNilamPatade attended one day workshop on “IoT project based training” at RayatShikshan Santha, KarmaveerBhaurao Patil College, Vashi, Navi Mumbai from 10th to 16th February 2020 → MsTejaswee Pol and Ms Mala Mishra attended two days national Seminar on IPR and Research Methodology Under the aegis of RUSA at Rayat Shikshan Santhas, KarmaveerBhaurao Patil College, Vashi, Navi Mumbai from 26th to 27th February 2020</p>	<p>Science, Central University of Kerala” supported by AICTE Training and Learning from 9th June to 13th June 2020.</p> <p>3. 6 days FDP on “Reigniting the Research Spark: Exploring New Methodologies & Perspectives” organised by St. Xavier's College, Mumbai from 15th to 20th March 2021.</p> <p>Prof Vaidehi Deshpande</p> <ol style="list-style-type: none"> 1. Online workshop on Bootstrap v4 Organised by Suven consultants & technology Pvt Ltd from 17th to 19th Oct 2020. 2. Webinar on Machine Learning organised by Nagindas Khandwala College from 14th to 16th May 2020 3. National level online workshop on Robotics with Sensors, Arduino + basic coding from scratch organised by Pragati College of Arts and Commerce Dombivali On 30th & 31st May 2020 <p>Prof Tejaswini Pol</p> <ol style="list-style-type: none"> 1. 2 days webinar on “National language processing using python” organised by SIES (Nerul) college of arts,science & commerce on 1st & 2nd June 2020 2. Online workshop on Deep learning organised by Ruia College, Matunga on 16th to 18th March 2021. 3. Online Course on Deep learning A-Z : Hands-On Artificial Neural Networks by Udemy in June 2020 <p>Prof Vinita Singh</p> <ol style="list-style-type: none"> 1. Online Course on Ethical Hacking from Scratch by Udemy in July 2020 2. Online Course on Machine Learning A-Z: Hands-on Python and R in Data Science from Scratch by Udemy in July 2020 3. Online workshop on Deep learning organised by Ruia College, Matunga on 16th to 18th March 2021. <p>Prof Priyanka Nimase</p> <ol style="list-style-type: none"> 1. 6 days FDP on “Current Trends & Future Technologies in Computing” organised by Usha Pravin Gandhi College in association with UDIT, University of Mumbai from 8th May to 13th May 2020. 2. Webinar on “VIRTUAL REALITY - Very important for Futuristic Training” organised by SIES College on 26th May 2020. 3. Online workshop on Deep learning organised by Ruia College, Matunga on 16th to 18th March 2021. 	
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			<p>Prof Nilam Patade</p> <ol style="list-style-type: none"> 1. 6 days FDP on “INNOVATION, IPR & ENTREPRENEURSHIP” organised by Pillai HOC College of Arts, Science & Commerce, Rasayani from 4th May to 10th May 2020 2. 4 Week Course on “Introduction to Internet of Things and Embedded System” under Coursera <p>Prof Mala Mishra</p> <ol style="list-style-type: none"> 1. One Week International Online FDP on “INNOVATION, IPR & ENTREPRENEURSHIP” organised by Pillai HOC College of Arts, Science & Commerce, Rasayani on 4th May to 10th May 2020 2. Online course by Alibaba Cloud Solutions on Global Acceleration Solution Certification from 21may to 27th May 2020 3. 6 days FDP on “Reigniting the Research Spark: Exploring New Methodologies & Perspectives” organised by St. Xavier's College, Mumbai from 15th to 20th March 2021. <p>Prof Saba Shaikh</p> <ol style="list-style-type: none"> 1. 6 days Online STTP entitled Practical Approach for Data Science from from 22nd June 2020 - 27th June 2020 organized by Computer Science and Engineering Department of RONGPIT in association with CSI and SSIP. 2. Two week Faculty Development program on R Language and R studio from 22nd June 2020 - 5th July 2020 organized by Cambridge Institute of Technology, Bengaluru. 3. One week international Webinar on Industry4.0: Artificial Intelligence & Related Technology from 6th July 2020 - 10th July 2020 organized by "Department of Electronics & Communication Engineering, Integral University, Lucknow." <p>Prof Pooja Khushwaha</p> <ol style="list-style-type: none"> 1. Workshop on Industrial Revolutions in IT organised by Dr N. G. P. Institute of Technology, coimbatore-48 on 18 May to 23 May. 2. Webinar on Introduction to Optical Coherent Communication organised by K. J. Somaiya Institute of Engineering and Information Technology ,Sion, Mumbai on 10th July 2020. 	
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10	Exhibitions/seminars/training courses conducted		<p>IT</p> <p>International webinar on “Current trends in Ethical Hacking” was conducted on 15/5/2020. More than 200 participants attended the webinar.</p> <p>CS</p> <ol style="list-style-type: none"> 1. Online Webinar on “Big Data” was conducted on 22/05/2020 from 3.00pm-4.30pm by Mr Rahul Tyagi, Senior Software Developer, Greenlight planet pvt Ltd. Around 50 participants from the CS & IT department attended the webinar. 2. Conducted a value added course on “Emerging Technologies in Computer Science” of 35 hours for SY & TYCS students followed by an online exam. Students from SY-60 & TY-75 attended the course, whereas certificates were given to 40 students who completed the course successfully from 10/06/2020 to 30/06/2020. 3. Seminar on “OVERVIEW OF WORK IN IT” by ABHISHEK NAYAK, SENIOR PROJECT ENGINEER, JP MORGAN on 10th Nov 2020 at 11am-12.30pm 4. Seminar on “DATA & INSIGHTS” by Mr Amit Rai, Senior consultant, ACIES CONSULTING on 10th Nov 2020 at 3pm - 4.30pm. 5. Seminar on “EMERGING PROGRAMMING LANGUAGES” by Anita nayak, SENIOR CONSULTANT, Capgemini on 11th Nov 2020 at 11am-12.30pm. 6. Seminar on “INFORMATION SECURITY FIELD AND CAREER OPPORTUNITIES” by Mr Mahesh gavkar on 11th Nov 2020 at 3.00pm-4.30pm. 7. Organised a Intra-departmental Online event “Tech Sparkle 2020-21” with Chief Guest Mr Shubham Dumbare, Founder Of Delta The Innovators in which winners of following competitions announced <ul style="list-style-type: none"> ● Dance Love Sing Live ● Essayholic ● Poster Coaster ● One Page ● Pythonworld ● Quizeria ● Projectography 	
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11	Books/ journals subscribed from grants		Nil	
12	Outreach activities (Popular lectures)		IT - -Peer Tutoring session on Microsoft Powerpoint Presentation by S.Y. BSc. I.T. students for T.Y. students of Marathi Dept on 16th January, 21. E Waste collection drive CS - Online quiz competition about COVID-19 for social awareness regarding the pandemic with the department of Philosophy on 30th May 2020. Total 450 students participated.	
13	Colleges mentored to apply for DBT Star College grants		Nil	
14	Invited lectures		IT -Mr. Dhiraj Mishra - International Webinar on “Current trends in Ethical Hacking” was conducted on 15th May, 2020. -Adv. Vaishali Bhagwat - Topic- Social Media Security at our Intercollegiate Tech Fest - SYMPOSIUM on 29th January, 2021. -Mr Pramod Yadav- A session on Data Science and its application. CS Mr. Rahul Tyagi Mr. Niketan Taware, Brightways Ms RIA YADAV , TRAINEE AT INFOSYS Mr Abhishek Nayak, Senior project engineer, : JP MORGAN Mr Amit Rai, Senior Consultant, Acies consulting Ms Anita Nayak, Senior Consultant, Capgemini Mr Mahesh Gavkar, Senior Security Consultant, IBM Mr Shubham Dumbare, Delta the Innovators Ms Shilpa B, SQuAD Infotech Pvt Ltd	

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Proofs of the above events are attached separately.

10. Self evaluation

Biotechnology:

Sr. No.	Objective (as stated in proposal)	% achieved	Quantitative metrics	Reasons for underachievement / If achieved, state in quantitative metrics
1	Extra practicals	50%	1	SY: Bioinfo practicals (Uniprot). TY: Students were introduced to a novel Smartphone App: Labster where they could perform various biotech practicals on a virtual platform. All regular practicals in the syllabus for FY, SY, TY were carried out online mode by sharing videos and solving problems
2	Projects -	100%	2	TY students carried out plant stress projects at their homes and performed statistical analysis with the help of Statistics students. FY Students performed gDNA extraction at home and posted their videos
3	Interdisciplinary projects/ workshops-	100%	2	-TY students of BT and Stats did statistical analysis of the effect of various stresses on plant growth. - BT department organized Iner-college Workshop in collaboration with Zoology department on the topic "Morphological and Molecular Phylogenetics"
4	Faculty Improvement	100%	2	All the 8 faculty members participated in FDPs and workshops and attended numerous webinars.
5	Outreach activity	100%	2	1. Gyan Vigyan Lecture series 2. Career Guidance session for Gurunanak School students
	Total		9/10	

Maths & Stats:

Sr. No.	Objective (as stated in proposal)	% achieved	Quantitative metrics	Reasons for underachievement / If achieved, state in quantitative metrics
1	Extra practicals	75%	1.5	9 practicals out of 12 practicals completed
2	Projects	100%	2	No. of projects = 6
3	Interdisciplinary projects/ workshops-	100%	2	-TY students of BT and Stats did statistical analysis of the effect of various stresses on plant growth.
4	Faculty Improvement was achieved	100%	2	4 out of 8 faculties have attended training programmes
5	Outreach activity	100%	2	8 activities done
	Total	95%	9.5/10	

IT & CS:

Sr. No	Objective (as stated in proposal)	% achieved	Quantitative metrics	Reasons for underachievement / If achieved, state in quantitative metrics
1	Extra practicals	100%	2	Students of IT and CS departments were introduced to various online learning tools, compilers and virtual labs. New practicals were introduced to aid the students to have online hands-on experience. Tools such as MIT app inventor, online compilers and AMD device manager in android studio were explored and used by students.
2	Projects -	100%	2	All the students of TYBSc IT and CS class completed a software project, individually, or in teams of 2. They have analysed requirements of different organizations to build an automated system for them. Some students of FYBSc IT, SYBSc CS have done projects in green computing, python programming, mobile application building, website making and few other topics.
3	Interdisciplinary projects/ workshops-	0	0	Nil
4	Faculty Improvement	100%	2	All the 7 faculty members of IT and 9 faculty members of CS participated in FDPs and workshops and attended numerous webinars.
5	Outreach activity	100%	2	1. Peer Tutoring activity 2. Online Quiz competition on covid 19 awareness 3. Online seminar on social media security
	Total		8/10	



Dr. Rachan Acharya
Course Coordinator

Dr. Himanshu Dawda
Head of the Institution (With Seal) (With Seal)