

ANNUAL PROGRESS REPORT (2017-18) OF DBT-STAR COLLEGE SCHEME

Annexure I

1. **Name of the College** : Tuljaram Chaturchand College
of Arts, Science and Commerce, Baramati
2. **Status(Govt./ Govt. Aided/ Autonomous/Pvt):**Govt. Aided
3. **Women's College or Co-educational** : Co-educational
4. **Urban/Rural** : Rural
5. **No. of departments supported** : 04
6. **NAAC Ranking + Year** :A+ (CGPA-3.55), 2017
7. **Details of extramural funding received in the last 3 years (UGC, DBT, DST; duration, period and amount):**

Funding Received for the period 2014-15 to 2018-19

Sr.No.	Agency	2014-15	2015-16	2016-17	2017-18	2018-19	Total
1	DBT						
	DBT Star	-	20,00,000	9,00,000	-		
	DBT (Dr..S.T. Pawar)	-	3,34,966		-		
2	DST – FIST	39,50,000	-	17,80,980			
	DST-SERB	3,00,000	6,00,000		10,80,000		
3	UGC						
	G.D.A.	4,80,000			83,7,440		
	IQAC	3,00,000			-		
	MRP (Prof.N.K.Dhane)	2,90,000			-		
	Substitute Teacher	14,45,024	54,81,565		-		
	Teacher Fellowship	30,000	75,000		-		
	11 th Plan	-	1,93,610		-		
	C.O.C.	-		21,59,550	-		
	B.Voc.	65,00,000		18,70,820	-		
	CPE	-		1,02,00,000	-		
	MRP	-		4,26,007	-		

(Dr..S.T.Pawar)						
TOTAL				-	41,23,4,962	

QUANTITATIVE

(Data to be provided in the figures as well as bar graphs, before and after the Star College Scheme was implemented in the college)

8. No. of applicants vs. No. of seats in each department:

		Microbiology	Botany	Zoology	Physics
F. Y. B. Sc.	No. of Applicants	400	500	407	275
	No. of Seats (Admission)	218	248	185	212
S. Y. B. Sc.	No. of Applicants	51	145	154	160
	No. of Seats (Admission)	51	145	154	146
T. Y. B. Sc.	No. of Applicants	31	24	41	63
	No. of Seats (Admission)	31	22	41	53

9. Number of students admitted year wise in different courses supported under the Star College Scheme:

Class	Number of students admitted			
	Microbiology	Botany	Zoology	Physics
F. Y. B. Sc.	30	22	30	27
S. Y. B. Sc.	49	26	27	22
T. Y. B. Sc.	31	16	22	23

10. Change in the cut off percentage/admission: N.A. [First Year]

Cut of	15-16 (before)	18-19
<u>UG (First Year)</u>	45	52
PG	Max -96 Minimum- 57	Max -98 Minimum- 63

11. Change in the dropout rate: N.A. [First Year]

dropout	15-16 (before)	18-19
<u>UG</u>	2.87	1.13
<u>PG</u>	2.18	1.1

12. Data on pass percentage (UG level):N.A. [First Year]

pass percentage	Total App.	No. of pass Student	No. of pass Fail	% of Passing
<u>Botany</u>	18	17	01	94.44
<u>Zoology</u>	36	23	13	63.88
<u>Microbiology</u>	36	32	04	88.88
<u>Physics</u>	46	36	10	78.26

13. Data on how many students opted for PG courses :N.A. [First Year]

14. List of additional practicals introduced

Microbiology :

1. Good laboratory Practices.
2. Wrapping of Glassware's and Plugging of Flasks and Tubes.
3. Adjustment of pH meter using pH meter.
4. Handling of Micropipettes.
5. Preparation of Slants and Butts.
6. Preparation of Molar/Normal/% solution.
7. Preparation of SOP for UV Spectrophotometer.
8. Preparation of SOP for operation of Cooling Centrifuge.
9. Preparation of Manuscript using Microsoft Word and Microsoft Excel.
10. Calibration of pH meter.
11. Fumigation of Lab.
12. Handling of Laminar Air Flow.

Botany :

1. Vermiculture technique.
2. Use of biofertilizers in crop field.
3. Phytoremediation of saline soil.

4. Practical's based on nursery management preparation of beds and raising seedlings.
5. Techniques of seed scarification.
6. Seed testing for viability and vigor.
7. Practical's based on nursery management- cultivation techniques.
8. Practical's based on nursery management
9. Raising of different types of green and poly house.

Zoology :

1. Culturing of Earthworm
2. To estimate the Morphometric measurements in fishes.
3. Handling of microscopes.
4. Preparation of buffer of desired pH and molarity.
5. Preparation of normal, molar and percent solution.
6. Study of heart beat in cockroach.
7. Analysis of Sugars by TLC.
8. Sectioning and staining and mounting from animal tissues.
9. Population dynamics of insects with Quadrature method.
10. Chick embryo culture on glass ring.
11. Study of fecundity in fishes.
12. Effect of acetylcholine & adrenaline on fish chromatophores.

Physics :

F.Y B.Sc

1. Young's Modulus of Metal Bar by flexural vibration method
2. Rigidity modulus of brass
3. Study and use of digital vernier, micrometer screw gauge, CRO etc.

S.Y. B.Sc

4. Calibration of Si diode as thermometer
5. Energy band gap of semiconductor
6. Measurement of capacitance
7. Characteristics of solar cell

T.Y. B.Sc

8. Measurement of electrical and thermal conductivity of copper
9. Study of AC bridges
10. Dielectric constant of non-polar liquid and dipole moment of organic liquid
11. B-H curve of ferromagnetic materials

12. Measurement of self inductance of coil

13. Determination of wavelength of given source

15. List of minor projects implemented name of students and supervisor

Microbiology

Sr. No.	Name of the Project	Name of Students	Name of Guide
1.	Isolation and purification of bacteriophage of <i>Xanthomonasaxonopodis</i> .	1. KajalGaikawad 2. SayaliDoshi 3. Monika Shejal 4. Bhakti Swami 5. SayaliShinde 6. KalyaniSonawane	Dr. M. H. Gajbhiye
2.	Isolation and characterization of amylase producing bacteria from soil	1. Nisha Bajaj 2. SantoshGulumkar 3. GeetanjaliPansare 4. MayurPawar 5. HappizaMallick 6. KomalJagtap	Mrs. Y. R. Mulay
3.	Isolation and identification of normal flora present in acne	1. GayatriBhavsar 2. KanchanMengade 3. GeetanjaliKarve 4. PranaliNale 5. Pravin More 6. NehaKhandale	Mr. D. V. Doshi
4.	Analysis of water sample	1. VidhyaNale 2. VaishaliLondhe 3. RichaJarande 4. ShraddhaShinde 5. OnkarKhaire 6. JayvardhanBagade	Mrs. K. R. Jagtap
6	Isolation and characterization of probiotic bacteria from milk and yogurt sample	1. MayurBankar 2. PoojaDhapte 3. KajalBhosale 4. SajidMujawar 5. ShivaniDombale 6. Jyoti Kulthe	Mrs. S. R. Shaikh
7	Isolation and identification of nitrogen fixation bacteria from soil sample	1. Sudeshnamandlik 2. RutujaBedake 3. ShubhamShitole. 4. ShrutikaMhetre 5. RupaliSirsat 6. AnkitaChavan	Miss. S. P. Owal
8	Isolation and characterization of lactic acid bacteria in dairy product (milk and yogurt)	1. YogeshYele 2. MayurRupnawar 3. Anjali Chande 4. ShwetaKharade 5. PratikshaSalunkhe 6. AishwaryaPatil	Mrs. P. C. Bhosale

9	Isolation and characterization of amylase producing bacteria from soil	1. Prashanrupnawar 2. PriyaPande 3. Shrutika Mane 4. RohiniGawali 5. VrushaliGawade 6. Snehal Kale 7. Ganesh Karanjkar	Miss. S. S. Shah
---	--	--	------------------

Botany :

Sr. No.	Name of the Project	Name of Students	Name of Guide
1.	Survey and collection of seasonal plants from different areas	More RupaliBapu WaghPriyankaBhausahab	Dr. (Mrs.) R. D. Chitale
2.	Phytoremediation of saline soil by using salt tolerant plant species	TawareRohitDadaso BankarSurajBhivaji MohiteDigvijayPrataprao	Dr. B. S. Mali
3.	Estimation of bioactive compounds from different plant sources	LalageVidyaSatish ZendeKshitijaVikash KhomaneKomal Sunil KadamSupriyaNandraj	Dr. (Mrs.) M. P. Patil
4.	Effect of vehicular pollution on growth and development of roadside plants	NaleShital Shankar GawadeUrmilaSomnath More KajalLaxman ShindeShitalJyotiram	Dr. A. B. Telave
5.	Isolation, Identification and characterization fungi from crop field	KhomaneRanjeet R. More AakashAbaji Gadhawe Rahul Rajendra Sutar Vishal Jalindar	Dr. M. B. Kanade
6.	Antimicrobial assessment of bryophytes from ghat regions	SurveUshaJalindar GophanePratiksha R FulariMeghaGorakh	Dr. S. J. Chavan
7.	Ecophysiological studies on weeds from arid region	ThoratTejashreeManoj TakaleHarshada Vijay	Dr. (Mrs.) M. P. Patil

Zoology :

Sr. No.	Name of the Project	Name of Students	Name of Guide
1.	Diversity of Dung beetles from Baramati Tehsil	Ms. SokateVaishnavi Sunil Ms. WaghSupriyaMahadev Ms. Barage Monika Dattatray Ms. Jain PratikshaSantosh	Dr. V.B.Nale
2.	Comparative Study of Entomotoxicity&Antimicrobial Activity of Plant extract against <i>SitophilusOryzae</i>	Mr. LonkarDipakGajanan Ms. TamhaneApurvaBaban Ms. WaghmodeSagarDnyandeo Ms. KhomaneAshwini Shankar	Mr..S.L.Londhe
3.	Studies on degradation of Honey bee venom protein by Neem plant leaves aqueous extract.	Ms.ShivarkarManali Vijay Ms.RajmaneDhanshriJaikumar Ms.ShindeNehaSarjerao	Mr..M.B.Atole

Physics :

Sr. No.	Name of the Project	Name of Students	Name of Guide
1.	Thin films by thermal evaporation	ChandgudeDiptiDigamber	Dr R D Kale
2.	Thin films by thermal evaporation	ChandgudeManaliDigamber	Dr R D Kale
3.	Water level Controller	DharmadhikariVidhyaRamkrushna	Dr A E Kalange
4.	Synthesis of Silver Nan particles	Gadekar Nikita Dadaso	Dr R T Sapkal
5.	IR Transmitter and Receiver	GaikwadDhanshriVishwanath	Dr A E Kalange
6.	Solar Tracking	GhadgeVinayakBalasaheb	M K Kokare
7.	Wireless switching using IC CD 4027	GodaseMayurBajrang	Dr A E Kalange
8.	Thin films by Spray Pyrolysis	HambireReshmaChandrashekhar	Dr V S Mohite
9.	Synthesis of Silver Nan particles	JagtapHarshadaHanumant	Dr R T Sapkal
10.	Synthesis of Nanoparticles by Hydrothermal	KauleSonaliArun	Dr R T Sapkal
11.	Synthesis of Silver Nan particles	KokateAishwaryaRajendra	Dr R T Sapkal
12.	Thin films by Spray Pyrolysis	MhetreMadhuri Sunil	Dr R T Sapkal
13.	Synthesis of Nanoparticles by Hydrothermal	MohiteNishaSantosh	Dr R T Sapkal
14.	Mobile Projector	PatilPranavGovind	Dr S B Kulkarni
15.	Thin Films by CBD	PhadtareKajalBabaso	Dr V S Mohite
16.	Thin films by Spray Pyrolysis	SankpalNilam Narayan	Dr R T Sapkal
17.		ShelarMohiniTukaram	
18.	Thin Films by CBD	ShindeSupriyaJyotiram	Dr V S Mohite

19.	Thin films by Spray Pyrolysis	TamhaneYogitaPandurang	Dr V S Mohite
20.	Thin films by Spray Pyrolysis	ZolMohini Bharat	Dr V S Mohite
21.	Automatic washroom light switch	JadhavVinaya Narayan	Dr A E Kalange
22.	IR Remote Switch	KulkarniAkshataArvind	Dr A E Kalange

16. Faculty improvement activities such as training courses, seminar.

Training course organized :

Short Term Faculty Development Programme

- 1) **Self Finance basis Short Term Faculty Development Programme** arranged at our college from **16th July 2018 to 22nd July 2018.**

Title : “ICT as a tool in higher education.

This programme was approved and sanctioned by UGC-HRDC, SPPU, Pune and conducted for seven days (42 contact hours). The theme of the programme was **“ICT as a tool in higher education.”** For this programme 44 applications were received and **38participants** from different disciplines attended the programme .

Considering the main theme of the programme, the topics related to ICT were mainly focused. This included topics such as Use of Apps, Social media, Power point presentation, Microsoft Word, MOOCs, MOODLE, SWAYAM, Google Doc, Google Scholar, Hacking, Use of ICT in preparation and presentation of study material, Digital evaluation, E- library, E-learning, J-gate, Internet security, Impact of ICT etc. Along with these topics, several other topics of general concern were also covered during the programme. This included Patent act, Intellectual property rights, Plagiarism, How to write research proposals, Projects and Papers, Effective classroom teaching, Evaluation methods, Use of audio visuals etc. Also some sessions were arranged for hands on training at computer laboratories for preparation of on line study material.

The participants were given the reading material and a copy of group photo in soft format on their respective E-mail. The performance of participants was evaluated on the basis of preparation of research proposals and an online test using MOODLE technology. The participation certificates received from UGC-HRDC, SPPU Pune, were given to every participant after valedictory function.

This Short Term Faculty Development programme was successfully completed with the kind cooperation of Mr. Upendra Chaudhari (Asth. Coordinator), faculty members of

Computer department and support staff of Computer, Chemistry and Store departments. Mr. Sanjay R. Kale. Worked as Coordinator

2) Short Term -Faculty Development Programme (3rd December - 9th December, 2018)

Title : “Mathematics for Biological Science”

TuljaramChaturchand College of Arts, Science and Commerce, Baramati in collaboration with Ministry of Human Resource Development Centre of SPPU have jointly organised Short Term Course for Biological science teachers at National level on “Mathematics for Biological Science”. Total 37 participants have completed short Term Faculty Development Programme. Speakers were vfrom recognised institutes like IIT -Mumbai, BARC-Mumbai, SPPU-Pune etc. During this programme following areas were covered

- Usefulness of Mathematics in learning biology
- Concept of mathematical Functions like (Linear, Power and Exponential functions)
- Applications of Biostatistics etc.

This Short Term- Faculty Development Programme was Coordinated by Dr. Yogini Ramkrishana Mulay.

Sr.No	Title of Workshop	Name of Speakers	Participants	Date of Workshop
1	NET-SET Preparation	DhawalV.Doshi	Microbiology-48 Botany-48 Zoology-48 Total-114	22/02/2018
2		Miss. T.D. Nadaf	Microbiology-48 Botany-48 Zoology-48 Total-114	
3		Mr. Suresh Palve	Microbiology-48 Botany-48 Zoology-48 Total-114	

Training course (Participated) :(Common to all)

Sr.No	Title of Workshop	Organized By	Participants	Date
1	Application of FTIR	Tuljaram Chaturchand College Baramati	10	12/12/18

2	Oneday Workshop entitled "Use of Statistical Tools in Research Data Analysis"	Shardabai Pawar Mahila Mahavidyalaya, Shardanagar	02	30/01/2018 to 31/01/2018
3	SDS-PAGE Electrophoresis	Tuljaram Chaturchand College Baramati	10	08/02/2018 to 09/02/2018
4	One day Workshop entitled "NET- SET Preparation"	Tuljaram Chaturchand College Baramati	03	22/02/2018
5	Fermentor Demonstration	Tuljaram Chaturchand College Baramati	06	13/03/2018

17. Outreach activities conducted and their impact / follow up

Sr.No.	Class	Name of students	Name of institute	Duration
1	S.Y.B.Sc. Microbiology	Gawade Trupti Sonawane Kiran	Ferrero India Pvt Ltd MIDC, Baramati	15 days
2	T. Y. B. Sc Zoology	Ms. Rahudkar Kajal Bharat	training in Explores & Understand DNA by BioEra Life Science Private Ltd., Pune on 22 nd to 23 rd Aug. 2017	Two days

18. Any outstanding achievement by student/faculty (merit, award, research paper, presentation in national/international conference/ etc; full citation to be provided)

Participation:

Name of students	Type of event	Venue	Dates
Tamhane Apurva Baban Adagale Mansi Arvind	Avishkar at Zonal Level research competition	BJ's Wagholi, Pune	20-04-2017

19. List of Short term training courses/workshops conducted for students and faculty, including title, duration, no. of beneficiaries

Department	Title	Duration	No. of Beneficiaries
Microbiology	SDS- Gel Electrophoresis	08/02/2018 to 09/02/2018	79
	Application of FTIR	12/12/2018	31
	Workshop conducted by Bio-Era Research and Development Pvt.Ltd., Pune.	22/08/2018 to 23/08/2018	07
	Soft Skill Development Programme	14/02/2018	31
	Motivational Training Programme.	02/08/2018	84
Botany	Application of FTIR	12/12/2018	?
	Soft Skill Development Programme	14/02/2018	?
	Motivational Training Programme.	02/08/2018	?
Zoology			
Physics	PCB Design and fabrication	08 to 13/01/2018	45
	ICANN 2017	7-9 Dec. 2017	50

20. Guest lectures :

Microbiology :

Sr.No	Title of Guest Lectures	Name of Speakers	Participants	Date of Lectures
1	Scientific Communication	1) Dr.Deewane 2) Dr.Bhole B.D 3) Dr.Kshirsagar V.J	48	07/03/18
2	Research	Singh	79	31/01/2018
3	Recent Techniques in Immunology	Dr.pareshVishawsrao	48	07/09/2017

Zoology:

Sr. No	Name of Faculty	Designation	Host Institute	Duration of Visit	Topic lecture / discussion	Participants
1	Dr. SarojGhaskadabi	Professor	Zoology Department, SPPU,Pune	30.01.2018	Genome organosation	35

2	Dr. ChandaNimkar	Scientist	NARI, Phaltan	10.02.20 18	New breed of sheep, SuwarnaNari.	35
3	Dr. PriyankaDuttaSaha	Assistant Professor	Modern College, Shivajinagar , Pune.	16.02.20 18	Dragonfly & Damsselfly	30
4	Dr. NetralKulkarni	Assistant Professor	Modern College, Shivajinagar , Pune.	16.02.20 18	Protein Synthesis	30

Physics :

Sr.No	Title of Guest Lectures	Name of Speakers	Participants	Date of Lectures
1	Experimental Techniques in Physics	Dr K Y Rajpure	48	9/02/2018
2	Physics Experiments	Dr. V. H. Raybaghkar, Wadia College Pune	135	6/02/2018
3	NET/SET preparation	Prof. More T. B Prof. Ashok Kamble Prof Phadtre P Prof Borate H DrNimbalkar R DrKakadeSandip	55	15-20 /01/ 2018

21. Visits to industries, institutes etc (name of place, duration of visit and no. of students)

Microbiology :

Name of place	Duration of visit	No. of Students
NIASM (National Institutes of Abiotic Stress Management)	14/12/2017	15
Late ManikbaiChandulalSarafBlood Bank	13/03\2017	30
Mala's Fruit Pvt. Ltd	12/01/2017	77

Botany :

Name of place	Duration of visit	No. of Students
1. Department of Botany, Osmania University Hyderabad 2. Botanical Survey of India, Deccan circle, Hyderabad 3. Central Institute of Medicinal and Aromatic Plants, Hyderabad	04/02/2018 to	15
Aundh, Kartikswami	17/02/2018	26

Zoology :

Name of place	Duration of visit	No. of Students
Sericulture, Apiculture, Dairy Farm & Poultry at KVK, Baramati	19-08-2017	30
NIO, Goa.	15 th to 17 th Jan. 2018	27

Physics :

Name of place	Duration of visit	No. of Students
Science Park at Pimpri-Chinchwad, Dist Pune And Mukhtangan Pune	21/02/2018	45

22. List of lab manuals / SOPs generated for all participating departments**Microbiology :**

- Spectrophotometer
- Colorimeter
- pH meter
- Autoclave
- Laminar air flow cabinet
- Cooling centrifuge

Botany :

- Flame photometer
- UV- Vis spectrophotometer
- Microphotography
- BOD incubator

Zoology :

- Spectrophotometer
- Colorimeter
- pH meter
- Autoclave
- Laminar air flow cabinet
- BOD incubator
- Rotary Shaker

Physics :

- Vacuum Evaporation and Electron beam Evaporation
- Spray Pyrolysis System
- Potantiostat
- Chemical Bath deposition
- Synthesis of Nanomaterials by Hydrothermal method

23 Feedback mechanism adopted (to be indicated in term of how the quality of teaching and hands on training improved)

The college has a feedback mechanism for receiving and analyzing the student feedback on the various activities organized in the college. We have designed a feedback mechanism for the different activities conducted under STAR College scheme. The feedback is collected on specially designed form / students remarks on the register.

24. Any special innovative approach adopted by the college in improving the UG education

- Pre admission counseling
- Induction program
- Preliminary and term end examinations

- Soft skill program at entry and exit level
- Use of ICT for teaching
- Organization of guest lectures
- Use of ICT in teaching learning process.
- Animal films shown to the students
- Preparation of PPT's for teaching
- Use of Models
- Use of charts

25. A summary on “how the Scheme helped in strengthening of the UG education and what would not have been possible without this” (not more than 1000 characters)

The program helps to strengthen the laboratory and infrastructural facilities for the students. Hands on exposure to the various experiments improve the practical skills of the students. The scheme provides an opportunity to undertake project at S.Y. and T. Y. B. Sc. Level. Students learn how to design experiments, learn how to do referencing , research methodology and scientific writing from the minor research projects. The communication and soft skill program improve the skills among the students. Also, the exposure through guest lecturers provides an opportunity to interact with the experts/ eminent scientist in the field.

Overall the scheme has played a significant role in thorough understanding of the subject and development of the students. DBT-STAR college scheme made us to achieve NAAC A+ Grade (CGPA 3.55) for 3rd cycle of NAAC accreditation. NAAC peer team interacted with students under STAR college scheme it was found that these students were more confident. The chairman of peer team was happy for their performance.

DBT – STAR college scheme also helped us to achieve best college awards and best Principal award from Savitribai Phule Pune University during the academic year 2016-17.

26. Suggestions/feedback for improving the scheme

STAR college scheme is very good for the UG students for improving their overall skills interms of their hands on experiments, communication skill and increasing their vision due to visit conducted to industry and research institutions.

We have following suggestions for improving the scheme.

1. We would be happy to know clear guidelines regarding the expenditure under the head “recurring grant” especially remunerations for resource persons.

2. If DBT identifies the names of scientist from different research institutes, it will be easier for us to place the students for summer training.

27. DBT STAR College advisory committee.

DBT Representative

1. Dr. C. V. Murumkar – Principal, Tuljaram Chaturchand College, Baramati
2. Dr. Suman Govil – Advisor HRD, New Delhi
3. Dr. Garima Gupta – Scientist D, Nodal Officer for STAR College Scheme, Department of Biotechnology, Government of India, New Delhi.

External Experts

4. Dr. K. K. Krushnani - Head School of Ediapetic Stress Management, National Institute of Abiotic Stress Management (NIASM), Baramati
5. Dr. K. C. Ahire - Dept. of Zoology, Savitribai Phule Pune University, Pune

Coordinator & Member Secretary

6. Dr. S. J. Sathe - Coordinator

Coordinator & Member Secretary

7. Mrs. Y. R. Mulay - Coordinator for Microbiology Dept.
8. Dr. A. B. Telave - Coordinator for Botany Dept.
9. Dr. V. B. Nale - Coordinator for Zoology Dept.
10. Dr. R. D. Kale - Coordinator for Physics Dept.

COORDINATORS DETAILS



Name : Dr. Shivaji Jagannath Sathe
Designation : Coordinator DBT-STAR College Scheme
Associate Professor & Head,
Department of Microbiology
Vice Principal, Tuljaram Chaturchand College,
Baramati
Address : P. O. Box – 051, Baramati, Dist. Pune
413102 (Maharashtra)

COLLEGE LOGO







