

An Institution of
the Society for the Higher Education
of Women in India

Sophia College (Autonomous)

Bhulabhai Desai Road
Mumbai – 400026

Ph: 022-23512642 / 23523304

sophiacollegemumbai.com

14th July 2020

Pratyush Sinha,
Junior Tech Assistant,
Room No. 525,
5th Floor, Block 3,
Department of Biotechnology,
CGO Complex, Lodhi Road,
New Delhi 110 003

Dear Mr Sinha,

Please find enclosed the Progress Report for the Star College Scheme submitted by Sophia College (Autonomous) for the years 2016-20 for consideration for Star Status. The hard copy of these documents will be sent by Speed Post at the earliest.

Thank you,

With regards,

Yasmin Khan
Coordinator,
Star College Scheme
Sophia College

Department of Biotechnology

Proforma for submission of progress reports for evaluation to Star status by colleges supported under Star College Scheme

1. Name of the College : Sophia College (Autonomous)
2. Name of Coordinator, designation, : Dr. Yasmin Khan, Vice Principal – Science & Associate Professor
Address, Phone nos. Department of Life Sciences, Sophia College (Autonomous), B. Desai Road, Mumbai 400 026
Phone No. 9821459654
3. Assessment duration : 12/07/2016 to 30/04/2020 Duration in years : 4 years
4. Details of Departments Supported

SI No	Name of Department	Courses (B.Sc./M.Sc./PG Diploma, certificate etc) offered	Regular Faculty members	
			With Ph.D.	Without Ph.D.
1	Department of Chemistry	B.Sc., M.Sc (Analytical Chemistry)	3	2
2	Department of Microbiology	B.Sc., M.Sc, Diploma in Clinical Analysis	3	3
3	Department of Life Sciences	B.Sc., M.Sc. (specialization in Neurobiology), Certificate course in Bioinformatics	4 + 1 (DST – WOS-A) scholar	1 (DST – WOS-B) scholar
4	Composite Department (BZP)	B.Sc., M.Sc (Biochemistry) Diploma in Quality Assurance in Food and Pharmaceutical Industry	4	1

5. Number & Date of Advisory committee meeting: Three – 10th July 2017 (with DBT nominee) 28th February 2017 and 20th December 2019 (without DBT nominee)
6. Qualitative improvements due to DBT support. Please highlight 5 salient points (within 500 words).

1. Laboratory skill enhancement:

New instruments/ equipment purchased and the benefits-

- Multiple units purchased helped the students to perform experiments independently and explore beyond the syllabus.
 - A number of new experiments could be conducted and many existing experiments were creatively extended. In the beginning, formal addition of the new experiments in the syllabus was not possible due to a fixed university syllabus. Once the College got autonomy, many of the new experiments encouraged under DBT star scheme could be introduced in the syllabus.
- 2. Enrichment of students and staff**
- There was an increase in experiential learning through industrial and field visits with the help of financial support from DBT.

- The quality and the number of workshops conducted, seminars organized for students and faculty (teaching and non-teaching) development were increased.
- With the mandate and support of the scheme, a number of faculty received subject related training; a few were invited as trainer at state/national level and as resource persons to share their expertise.

3. **Improved social interaction and environmental awareness:**

- The students have become more enthusiastic and interested. This has led to an increase in student participation in various intercollegiate events and competitions.
- There has been an enhancement of sensitization of students to socially relevant issues and social outreach.
- **Nobel Oration** - Annual Sophia Nobel Oration which discusses the Nobel Prize winning work by eminent scientists working in the field, is held every year in the fields of Physiology or Medicine /Chemistry/ Physics/Peace. It serves as a science update platform, open to all as a public lecture and creates an awareness.
- **Ananya**, an unique institutional academic College festival, which is based on the annual theme of the year, encourages each department, individually or in collaboration with other departments, to organize seminars/debates/competitions/exhibitions and other activities for students and encourages an inclusive approach. The festival got an impetus with DBT support.

4. **Innovative research activity:**

- Immersive learning - Instead of select few students, all students were able to do hands-on projects and UG students could present their work in the College research meet, 'Quest' held on Science Day. (A few of these are listed below)
- **The Excellence in Science Program (EXSP)** which has been running for over 25 years, permits few students, who are interested in pursuing academic interests beyond the syllabus, undertake activities such as seminar presentations, literature reviews and projects under the mentorship of staff members. The additional facilities and funds available through Star College Scheme, in terms of equipment and consumables, now permits these students to explore more challenging projects.
- There has been an increase in interdepartmental collaborations for research activities and projects.

5. **Communication skill development :**

- Students presented at state level research meet 'Avishkar', which led to publication (both for student and staff)
- Improved level of projects led to encouraged improvement of writing skills, through a course in scientific writing. It improved the quality of the in-house science newsletter, Spectrum, which is published in collaboration with the department of Life Sciences and Biochemistry, St. Xavier's College.
- A new journal SCRIBE was launched on 28th February, 2020, to mark the National Science Day. An issue will be brought out each year.

Some of the minor projects undertaken under Star College Scheme:

- a) "Effects of ethanol on motor neuron development and cell death in zebrafish embryos (*Danio rerio*). Presented in the Medicine and Pharmacy Category at the undergraduate level cleared the first round at the 14th Avishkar Research Convention 2019-20.
- b) "Role of DHA in hypoxia induced motor impairment in *Caenorhabditis elegans*". Presented in the Medicine and Pharmacy Category at undergraduate level cleared the first round at the 14th Avishkar Research Convention 2019-20.
- c) Detection of adulterants and microbial pathogens in traditional Indian sweets
- d) 'Synthesis, characterization and application of nanoparticles in novel skin cream formulation' Presented in the Basic Science Category at undergraduate level at the 13th Avishkar Research Convention 2017-18.

- e) “Comparative antioxidant potential of two draught resistant medicinal plants of Rajasthan- *Prosopis cineraria* and *Capparis decidua* Presented in the Basic Science Category at undergraduate level at the 14th Avishkar Research Convention 2019-20
- f) ‘Synthesis of tribromoaniline –a green novel approach’ Presented in the Basic Science Category at undergraduate level at the 14th Avishkar Research Convention 2019-20

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

- A science newsletter **Spectrum** a brain child of the Life Science department was launched in 2017 with the objective to popularize science in the younger generation, targeted for grade VIII and above. Later, in the year 2018 this publication became a joint **collaboration** with the department of Life Sciences and Biochemistry, St. Xavier’s College (Autonomous).
- In the academic year 2019-2020, on National Science Day, 28th February, 2020 the inaugural issue of **SCRIBE** (Science Chronicles in Research and Investigation Based Education), annual science journal of Sophia College (Autonomous) supported by DBT Star College Scheme, was released. The journal was a culmination of a long felt need to encourage undergraduate as well as postgraduate students to nurture a scientific curiosity and inculcate the necessary skills for scientific writing. SCRIBE offered a platform for sharing scientific thoughts, ideas and experiments.
- Encouraged by the mandate of Star College Scheme, **feedback** for activities conducted was sought, which today has become an essential part of all the activities undertaken. The feedback helps the organizers to know the interest of the stake holders and thus improve, organize and plan better giving scope for continuous quality improvement.
- **RBPT** (Research Based Pedagogical Tools) workshops sponsored by DBT has not only trained many staff members but staff have been invited to participate in state level training also. This exposure has brought about a paradigm shift in pedagogy and motivates the students to become active learners.
- **POGIL** (Process Oriented Guided Inquiry Learning) has been initiated by some staff members, which focusses on putting the students first and provides teachers with tools to optimize learning i.e. a shift in teaching- learning from being teacher centric to student centric.
- **SOP’s** (Standard Operating Procedures) for the new experiments have been developed/created. This documentation will help to achieve efficiency for systematic and smooth conduction of the experiments. This has also helped in resource generation.

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

- Sophia College was granted DBT Star College Scheme in March 2016, and the College received the expected sanctioned funds only in July.

The College has always had a strong foundation of research initiatives and other student based activities however, due to limited finances and time constraints, these activities were not conducted in sufficient numbers. Additionally, external factors such as erratic/ irregular University exam schedules have also impacted the implementation of the initiatives. Award of the Star College Scheme gave the necessary impetus and despite many constraints the execution of the planned activities got streamlined, star activities got embedded/ amalgamated in the regular teaching and learning and other related activities. The execution of these activities was possible with the help of the financial support and a target-based approach to achieve the goals.

- Sophia college was granted autonomy in the year 2018 which entailed major administrative and academic planning and reorganization, which did not permit sufficient time to do justice to Star College activities. Further our second year's money was received only in November 2018. Hence a year's extension was requested prior to applying for star status.

- After Sophia became a part of the Star College Scheme in 2016, there has been only one advisory committee meeting with the DBT nominee. It is felt that increasing the frequency of advisory committee meetings will help to get constructive feedback on a regular basis which will be a value addition, give a right direction and will help to enhance quality of activities and initiatives. Also the disbursal of grant money on a regular basis will facilitate smooth execution of plans/ initiatives.

9. Key performance indicators

S. no	Indicator	Pre-support					During /After Support					Remarks
		Total =					Total =					
		M	F=				M	F=				
			SC	ST/NT	OBC / SBC	G		SC	ST/NT	OBC / SBC	G	
1	No. of students admitted	0	2	1	2	112	0	4	--	6	118	Sophia College is a Women's College Being a minority Institution, the college is required to keep 50% seats for minority students The college has a fixed University sanctioned number of 120 students which cannot be exceeded
		The student data is average of 2 years					The student data is average of 2 years					
2	No. of students passing out (%) Students Admitted/passing out (pass %)	85%					92%					
		89/105					84/91					
3	Drop-out rates	FYBSc – approx. 30% SYBSc and TYBSc – one or two students					FYBSc – approx. 30% SYBSc and TYBSc – one or two students					FYBSc dropouts are because the students get admitted to other courses after the college admission process. SY and TY dropouts are for specific personal reasons of the student
4	No. of students opting for MSc	About 36% opted for MSc. Another 35% went for other PG diploma and B.Ed					About 42% opted for MSc Another 38% went for other PG diploma & B.Ed					
5	Average marks	52% students got an O or A grade					53% students got an O or A grade					The evaluation process has changed 3 times since 2015. Further college was given autonomy in 2018 when the syllabus and evaluation was changed significantly

6	No. of hands-on experiments being conducted		Annexure 1	
7	No. of new experiments introduced	Since the college was following the University syllabus there was no scope to introduce new experiments	Annexure 2	
8	Publications (scopus indexed) /patents, if any.		1 publication – Scopus index 7 publications – others 3 publications – In house journal Annexure 3	
9	Training received by faculty	Mandatory Orientation and Refresher Courses were undertaken. Few staff also went for additional training	Annexure 4	
10	Exhibitions/seminars /training courses conducted	All these activities were conducted by departments.	There has been a significant increase in these activities. Annexure 5	
11	Books/journals subscribed from grants	The college has a library allocation for each department	The college has a library allocation for each department	Books/Journals were not included when our college received the Star College Scheme. Hence, we failed to take advantage of this opportunity
12	Outreach activities (Popular lectures)	Some outreach activities were always conducted by departments	There has been an increase in these activities after the support. Annexure 6 Popular lectures (Annexure 7)	
13	Colleges mentored to apply for DBT Star College grants		Nil	We have not mentored any college to apply for Star grants formally, however, we have collaborated with several to conduct activities
14	Invited lectures	Invited lectures used to be conducted	Because of the financial assistance the quality and quantity of lectures has improved significantly Annexure 7	

Important Note: The data has been compiled during the Covid19 pandemic with Mumbai city being under lockdown. Complete access to data available in the college has not been possible.

10. Self evaluation

#Department	*Objective (as stated in proposal)	% achieved	Marks	Reasons for underachievement / If achieved, state in quantitative metrics
Students				
Departments of Chemistry Microbiology Life Sciences Composite (BZP)	Encourage Research and Innovation	100	2	Every student of SY and TY carries out a project
	Update students on Contemporary problems and sensitize to environmental issues	100	2	Several talks, workshops, exhibitions (by students) are conducted to create awareness
	Develop Communication and Expression skills- start journal and make films	50	1	A Science Newsletter – Spectrum was started 3 years back and an In house journal SCRIBE was released last year for students’ articles. However making of films has not really started
Faculty				
Departments of Chemistry Microbiology Life Sciences Composite (BZP)	Summer Internship support	0		On receiving the grant we realized that giving individual members support was not feasible
	Support to attend scientific / educational conference	100	2	Several faculty have been supported to attend conferences & workshops
	Support for devising on-line courses	0		
Lab staff				
Departments of Chemistry Microbiology Life Sciences Composite (BZP)	Workshop on Good lab Practices and equipment maintenance	100	2	Conducted every year. Some staff have been sent for training course
	Summer internship support to upgrade laboratory skills	50		Internship was not possible but lab staff have been sent to workshops to upgrade their skills
TOTAL			9	
# Objectives in the proposal are common for all the departments				

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

11. 2 new dimensions that shall be added if accorded Star status (within 200 words).

• **Strengthen the existing outreach program/ activities**

The Star College Scheme helped initiate outreach programs at a school at Rajgurunagar and also in Haloli, which is adopted by the NSS unit of the college where varied classroom activities, demonstration using simple experiments with hand - made models and some confidence boosting exercises were conducted. This experience drew enthusiastic response.

If accorded Star status, it is planned to go to the next level and encourage the students to become facilitators of inquiry-based science learning. The mentoring would be done on a regular basis, by more frequent visits by groups of students. Online teaching tools will also be used to monitor and stay connected with the school students on a regular basis. It is also proposed to extend the programme to the community level and address issues like nutrition, health and hygiene so that the entire village benefits from it.

• **Creation of resource material for E – learning**

In view of the current scenario it is envisaged that creation of resource and E-content would be of immense value both in the current situation and for use later. A major lacuna currently is lack of E-learning platforms like Virtual Labs, where learners can gain the experience of practical experimentation without any direct physical involvement or bench work. Using equipment bought from the enhanced finances of Star Status each department will mandatorily prepare videos of some experiments from their syllabus. It is also proposed that the SOP's created under the star college mandate will be compiled into an E – manual and will be uploaded as a ready resource and reference.

Gasum Chen

Course Coordinator
(With Seal)



Manda Shull

Head of the Institution
(With Seal)

**PRINCIPAL SOPHIA COLLEGE
(AUTONOMOUS)**

Annexure 1
Hands -on Experiments

Department of Chemistry

Hands on practical

Practicals	Pre star college	Post star college
FYBSc	26 (Two Papers)	26 (Two Papers)
SYBSc	30 (Three Papers)	30 (Three Papers)
TY B.Sc	46 (Four Papers)	46 (Four Papers)

The difference is we were able to buy more instruments/ electrodes so the instrument to student ratio changed drastically so that students actually could do hands on. Also we were able to buy chemicals which were expensive.

Some experiments are listed below:

TYBSc

Conductometry

- To titrate a mixture of weak acid and strong acid against strong base and estimate the amount of each acid in the mixture conductometrically.

Colorimetry

- To estimate the amount of Fe(III) in the complex formation with salicylic acid by Static Method.

SY B.Sc

- To determine standard EMF and the standard free energy change of Daniel cell potentiometrically
- To determine the amount of HCl in the given sample potentiometrically.

FY B.Sc

- To determine dissociation constant of weak acid (K_a) using Henderson's equation and the method of incomplete titration pH metrically.
- To verify Beer-Lambert's law, using $KMnO_4$ solution by colorimetric method.

Department of Microbiology

Hands on practicals

Practicals	Pre star college	Post star college
FYBSc	63 + 6 Demo	67 + 2 Demo
SYBSc	56 + 3 Demo	58 + 2 Demo
TY B.Sc	63 + 2 Demo	65

FYBSc (Demo practicals done hands-on)

- Staining of flagella
- Effect of desiccation on bacteria
- Effect of surfactant (cetrimide) on bacteria
- Study of lichens

SYBSc (done hands -on)

- Demonstration of agarose gel electrophoresis

TYBSc (Done hands -on)

- Digestion of lambda DNA by restriction enzymes EcoRI and HindIII
- VDRL and Widal test

Department of Life Sciences**Hands on practicals**

Practicals	Pre star college	Post star college
FYBSc	26	26 (old) + 3 (new)
SYBSc	30	30 (old) + 3 (new)
TYBSc	36	36 (old) + 7 (new)

Newly introduced Hands- on Post STAR**FYBSc:**

- Demonstration of mitosis in garlic roots using Luxol fast blue
- Origami modelling of DNA
- Simulation of Adaptive radiation and selection using Darwin's Finches as example

SYBSc

- Preparation of indicator papers prepared from Natural vegetable resources and corresponding of pH scale to shade of colour
- Effect of temperature on chlorophyll pigments and the same was linked to climate change.
- Estimation of Abscisic acid content in plant tissue material.

TYBSc

- Tracking of the development of Zebrafish embryo over 72 hours.
- Demonstration of olfactory assay of *C elegans*

- Study of regeneration of hydra in the presence of Lithium chloride.
- Use of simulated table top data for calculating Biodiversity index.
- Use of leaf margin as climate indicators.
- Preparation of bioplastics has been introduced
- Hydra maintenance (Demonstration)

Composite Department

Department of Zoology

Hands on practical

Practicals	Pre star college	Post star college
FYBSc	4	4(old) + 3(new)=7
SYBSc	8	8(old) + 5(new) 13

FYBSc:

- Study of Paramecium culture to observe food vacuole, contractile vacuole and ciliary movement
- Determination of population density (Daphnia or any other suitable organism) by sub-sampling method.
- Aseptic techniques to transfer culture media.

SYBSc:

- Study of development of zebrafish embryo and chick upto 72 hours (only observation without disturbing larvae)
- Study of air microflora
- Study of sound pollution monitoring device
- Effect of varying parameters on activity of enzyme Acid Phosphatase
- Techniques in microtomy and study of histology of glands

Biochemistry

Class	Number Pre- star college	Number Post -star college
T.Y. B.Sc (Two Papers)	21 + 4 demonstration experiments	23 + 02 demonstration experiments + 02 extended experiments + 02 new experiments + 02 demonstration experiments changed to group performance experiments

New experiments introduced under DBT Star College Scheme

Biochemistry T.Y.B.Sc

- Principle and concept of colorimetric measurements – five different colored solutions were used of varying concentrations to understand the concept of lambda max, Beer Lambert law and the limitations of the law.
- Hands on training in use of Bioinformatic tools
- Enzyme studies – Along with studying the effect of substrate concentration on enzyme activity (β amylase), the effect of enzyme concentration on enzyme activity was also studied
- Standard solution preparation for ascorbic acid and calcium estimation by individual students to encourage independent and accurate preparation of reagents.
- Technique of separation of proteins by electrophoresis - separation of serum proteins by horizontal agarose gel electrophoresis. Peer teaching by postgraduate students to undergraduate students (Was a demonstration experiment)

Physics F.Y.B.Sc

Hands on practicals

Class	Number of Pre Star College	Number of Post Star College
FYBSc	23 +03 demonstration experiments + 04 skill experiments	26 + 05 demonstration experiments + 04 skill experiments + 06 new experiments

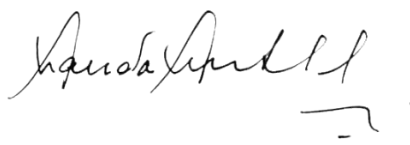
New experiments introduced under DBT Star College Scheme

Hands on Experiments:

1. Torsional Oscillation: To determine modulus of rigidity η of a material of Biological Fibre by torsional oscillations (extension of existing practical).
2. Surface Tension/ Angle of contact: To determine the surface tension of a Biological Fluid by capillary tube method (extension of existing practical).
3. To study characteristic of Zener Diode (extension of existing practical).

New Experiments:

1. NAND as EX – OR Gate
2. NOR as EX – OR Gate
3. EX – OR gate as I's complement.
4. Characteristics of transistor.
5. Lissajous figures
6. Seven segment display using EX - OR gate.



Annexure 2

New Experiments Introduced Under Star Scheme

Department of Life Sciences

T.Y.B.Sc

- 1) To encourage environmentally friendly practices, preparation of bioplastics has been introduced
- 2) Hydra maintenance (Demonstration)
- 3) Tracking the development of zebrafish embryos over 72 hours.
- 4) Demonstration of olfactory assay in *Caenorhabditis elegans*
- 5) Study of regeneration of hydra in the presence of lithium chloride.
- 6) Use of simulated table top data for calculating Biodiversity index.
- 7) Use of leaf margin as climate indicators.
- 8) Estimation of stomatal index and determination of plant microclimate conditions

Extension of existing practicals

- 9) Cytochrome C oxidase staining of zebrafish embryo (Extension of chick embryo system)
- 10) Biostatistics in analysis of Stroop's test (Extension of the test for data analysis by application of an analytical technique)

S.Y.B.Sc

- 1) Preparation of indicator papers prepared from Natural vegetable resources and corresponding of pH scale to shade of colour
- 2) Effect of temperature on chlorophyll pigments and the same was linked to climate change.
- 3) Estimation of Abscisic acid content in plant tissue material.

Extension of existing practicals

- 4) Comparison of Protein content of pulses and grams (Extension of Protein estimation by Biuret method)

F.Y.B.Sc

- 1) Demonstration of mitosis in garlic roots using Luxol fast blue
- 2) Origami modelling of DNA
- 3) Simulation of Adaptive radiation and selection using Darwin's Finches as example
- 4) To record campus biodiversity using the department camera and digital documentation facility

Extension of existing practicals

- 5) Visualization and digital recording of live cell processes using mobile camera - Cytoplasmic streaming in *Tradescantia* cells and pollen germination (Extension of *Tradescantia* cells and recording on paper)

Department of Microbiology

T.Y.B.Sc.

- 1) Study of pseudohyphae of *Candida albicans*
- 2) Isolation of *Corynebacterium diphtheriae* on different media and study of its macroscopic and microscopic characteristics.

- 3) UV protective effect of herbal extracts on bacteria.
- 4) Enrichment and study of purple sulfur bacteria, green sulfur bacteria, purple and green non-sulfur bacteria
- 5) Isolation of Chloroplasts from leaves and exploring effect of lights of different wavelengths on photosynthetic activity.

Extension of existing practicals

- 1) Use of various waste materials for production of amylase, instead of only one, hence it became a comparative as well as an environmentally friendly process.
- 2) Detection and quantitative estimation of lipolytic activity was carried out from various spoilt fat rich foods instead of one source as done in regular practicals.
- 3) Enrichment, Isolation and Identification of Acetic acid Bacteria and production of acetic acid by them using natural substrates/fruit pulp/ vegetable wastes
- 4) Isolation of Mitochondria from various plant sources (cauliflower, spinach) and studying the mitochondrial activity and the effect of inhibitors (malonate)
- 5) Comparison of amylase activity of *Aspergillus niger* grown on different waste materials (Banana peel, wheat bran, potato skin) using solid state fermentation.
- 6) Isolation of proteolytic bacteria from protein rich foods (stale egg, paneer, fish pickle, minced meat) and colorimetric estimation of their proteolytic activity.
- 7) Vitamin C content in fruits: Students learnt the estimation of vitamin C content. This concept was extended to the estimation of vitamin C in various citrus fruits.

S.Y.B.Sc

- 1) Quantitated DNA present in onion using UV spectrophotometer
- 2) Study effect of copper on E.coli
- 3) Survival Of E.coli at room temperature and 5C
- 4) Enrichment and study of Iron Oxidizing bacteria.
- 5) Alkaline phosphatase test for detection of phosphatase enzyme in milk.
- 6) Enrichment and study of purple sulfur bacteria, green sulfur bacteria, purple and green nonsulfur bacteria
- 7) Preparation of silver nanoparticles using neem leaves, tulsi leaves, mint leaves and ginger and determination of lambda max using UV-visible spectrophotometry and checking the antimicrobial activity using agar cup/ cylinder plate method

Extension of existing practicals

- 1) Detecting the presence of lactose fermenters and non lactose fermenters on instruments in the Microbiology laboratory using MacConkeys agar
- 2) Isolation of amylase, lipase and protease producing thermophilic bacteria from soil samples.
- 3) Determining bactericidal concentration of disinfectant lizol.

FYBSc

- 1) Preparation and efficacy testing of *Azotobacter* based biofertilizer from isolates obtained from soils in Mumbai

Department of Chemistry

TYBSc

- 1) Exchange efficiency and Ion exchange capacity of a cation exchanger.
- 2) Estimation of paracetamol in drug samples
- 3) Separation of commercial samples of food colour by Paper Chromatography.
- 4) Analysis of glucose in jam by spectrophotometry and iron in the given sample by colorimetry using green reagent (tea extract).
- 5) Estimation of acid neutralizing capacity of herbal antacids
- 6) Effect of heat on the vitamin C content of leafy vegetables
- 7) Preparation of complex Copper acetylacetonate
- 8) Preparation of iron nanoparticles from used blades
- 9) Estimation of calcium carbonate in different types of toothpastes using complexometric titration with EDTA and spectrophotometrically
- 10) Estimation of metronidazole content by non-aqueous titration of commercially available tablets.

Extension of existing experiments:

- 1) Estimation of aspirin content colorimetrically of commercially available tablets.
- 2) Estimation of paracetamol content by redox titration of commercially available tablets.
- 3) Dyeing of fabric using acid dyes, mordant dyes, direct dyes, azoic dyes
- 4) Monograph of certain drugs was written and tests were demonstrated for their identification
- 5) Comparative study of Green method and Conventional method in inorganic preparations.
- 6) Separation of commercially available food colours using paper chromatography
- 7) Project on extraction of natural dyes and dyeing of fabric using natural dyes for
- 8) Estimation of Magnesium in talcum powder
- 9) Estimation of Ibuprofen content in commercial sample of tablets
- 10) Estimation of phosphate spectrophotometrically in different types of cola
- 11) Estimation of Fluoride in toothpaste
- 12) Estimation of the hardness of water using water samples from different parts of the city.
- 13) Comparison and estimation of the glucose content in different brands of honey.

S.Y.B.Sc

- 1) Setting up of cells in electrochemistry for SYBSc students
- 2) Green Chemistry experiment - Synthesis of cyclohexanone oxime using grindstone chemistry.
- 3) Comparative study of various organic derivatives synthesized using green methods or chemicals
- 4) To prepare cyclohexanone oxime by Grindstone method
- 5) Bromination of acetanilide using greener reagents
- 6) Synthesis of Ni-DMG by grindstone method.
- 7) pH and conductometric titration of acetic acid vs sodium hydroxide to find a suitable indicator and determine dissociation constant of acetic acid

Extension of existing Practicals

- 1) Estimation of aspirin content colorimetrically of commercially available tablets for SYBSc students.
- 2) Investigation of the reaction between copper sulphate and sodium hydroxide using acid-base titration.

F.Y.B.Sc

- 1) Detection of nitrogen in fruit and vegetable sample to determine the presence of pesticides
- 2) Separation of Plant pigments by Paper Chromatography

Extension Experiments

- 1) Mixed Melting Point: Students learnt the concept of recrystallization of organic compounds. Recrystallization is a procedure used to purify organic compounds. Once purified, the purity of the compound is confirmed by determining the melting point of the compound.
- 2) Heat of dissolution of calcium chloride

Composite Department (Biochemistry, Zoology, Physics)

Department of Physics

F.Y.B.Sc

- 1) NAND as EX – OR Gate
- 2) NOR as EX – OR Gate
- 3) To find angle of inclination by inclined table method
- 4) Lissajous figure using CRO
- 5) Seven Segment Display and 1's complement by using IC 7486
- 6) EX – OR gate as 1's complement.
- 7) Characteristics of transistor.

Department of Zoology

S.Y.B.Sc

- 1) Identification of electron micrograph of organelles and symptoms of diseases was modified and supplemented with seminar by students with the aid of power point presentations.
- 2) Study of air flora
- 3) Presentation by students on nutrition related metabolic disorders
- 4) Measurement of sound pollution in different areas of Mumbai
- 5) Exercise in framing a research hypothesis - Students were taught how to frame a research hypothesis. Each student was individually asked to frame an original hypothesis
- 6) Effect of vermicompost on growth of fenugreek seeds.

F.Y.B.Sc.

- 1) Research Based Learning on Dengue, where the students monitored growth of mosquito larva under controlled conditions. They later presented their results, risks and prevention of Dengue in a class seminar.
- 2) Biodiversity survey of Sophia College campus and were asked to present their results in the form of a photographic record.

Department of Biochemistry

T.Y.B.Sc

- 1) Principle and concept of colorimetric measurements – five different colored solutions were used of varying concentrations to understand the concept of lambda max, Beer Lambert law and the limitations of the law.

- 2) Hands on training in use of Bioinformatic tools to corroborate with the theory and discussion of project work - peer teaching

Extension of existing practical

- 1) Enzyme studies – Along with studying the effect of substrate concentration on enzyme activity (β amylase), the effect of enzyme concentration on enzyme activity was also studied.
- 2) Standard solution preparation for ascorbic acid and calcium estimation by individual students to encourage independent and accurate preparation of reagents.
- 3) Technique of separation of proteins by electrophoresis - separation of serum proteins by horizontal agarose gel electrophoresis. Peer teaching by postgraduate students to undergraduate students (Was a demonstration experiment)
- 4) Peer teaching on hands on Thin layer chromatography of oils and circular and ascending chromatography of amino acids by postgraduate students of Biochemistry to undergraduate students(TLC was a demonstration experiment)

A handwritten signature in black ink, appearing to read "Sudha S. S.", with a horizontal line and a small mark below it.

Annexure 3
List of Publications

1. Surti, A. Ansari R (2018) Characterisation of dye degrading potential of suspended and nanoparticles immobilized cells of *Pseudomonas aeruginosa* AR-7. Journal of Microbiology, Biotechnology and Food Sciences Vol. 8. 774-780
(Scopus Indexed)
2. ‘Triphala -An Indian Ayurvedic Herbal Formulation’: A comparative study of some biological properties of triphala, its ingredients, & triphala silver nanoparticles. Pratiksha Chandorkar & Jyoti Mantri, International journal of Advance Research In Science and Engineering, Volume 06, Issue No. 12 December 2017:ISSN: 239-8354
3. Study of Antimicrobial and Wound Healing Properties of Cotton gauze impregnated with Calendula and Silver nanoparticles. Shrutika Bhaskar, Jyoti Mantri, International Journal Of Advancement In Engineering Technology, Management and Applied Science (IJAETMAS) ISSN: 2349-3224, Volume 05 - Issue 01, January-2018 PP. 27-38
4. Patel P., & Mantri J. (2019) Evaluation of a topical formulation containing extracts of turmeric, pomegranate and banana peel on *S aureus* pathogenesis and studying its wound healing properties Journal of Emerging Technologies and Innovative Research Vol. 6 (Issue 5) 17-26. (ISSN-2349-5162)
5. Khan G., & Mantri J. (2019) Anticandida and immunomodulating activity of apple cider vinegar; its use in treating denture stomatitis and as a root canal irrigant. Journal of Emerging Technologies and Innovative Research Vol. 6 (Issue 5) 600-610. (ISSN-2349-5162)
6. Ferns R. ‘Teaching Molecular Symmetry: From being a sage on the stage to a guide by the side’ Xplore, vol.11, issue 1, March 2020, ISSN 2249-1878
7. Murthy S. Comparative antioxidant potential of two draught resistant medicinal plants of Rajasthan- *Prosopis cineraria* and *Capparis decidua* has been sent for publication in an International journal VEGETOS and is under review.
8. Rodrigues F, Miranda C., and Shetty P. (2019) Antioxidant capacity and free radical scavenging activity of *Pterocarpus marsupium* and *Vitis vinifera* by using different in vitro model-A comparative study. Journal of Emerging Technologies and Innovative Research Vol. 6 (Issue 5) 578-585. (ISSN-2349-5162)

Published in SCRIBE – In house Science Journal

9. Khan N, Shetty P. Estimation of Amylose in Different Varieties of Rice Samples. SCRIBE – Science Chronicles in Research & Investigation Based Education. 2020; 1: 7-11.

10. Fernandes A, Shetty P. Estimation of The Total Polyphenolic Content in Different Brands of Herbal Shampoos. SCRIBE – Science Chronicles in Research & Investigation Based Education. 2020; 1: 12 -17.
11. Dsouza D, Dsouza M, Qureshi S, Khan Y. Impact of Mobile Screen Time on Sleep Duration. SCRIBE – Science Chronicles in Research & Investigation Based Education. 2020; 1: 18 -21.

A handwritten signature in black ink, appearing to read 'Ananda Prasad', with a horizontal line and a small mark below it.

Annexure 4
Training Received by Faculty

No.	Name of Faculty	Conference / Workshop / Course Attended
2016-17		
1.	Hema Ramachandran, Medha Rajadhyaksha Hema Subramaniam	26 th Biennial Conference of The Asian Association for Biology Education, Goa, India September 20 – 24, 2016. All three presented papers
2.	Nabila Sorathia	DBT sponsored workshop on ‘Molecular Biology Techniques in Diagnostics’, Ramnaraian Ruia College,
3.	Yasmin Khan	Co-organizer (along with IGIB, New Delhi) for the Indian Zebrafish Investigators Meet at Alibaug,
4.	Yasmin Khan	RUSA sponsored Short term Course on ‘E-Content Development’ organized at Mumbai University
5.	Rajbinder Dehiya Sirisha Murthy	“Research Based Pedagogical Tools Workshop” at IISER, Pune.
6.	Rajbinder Dehiya	Level 2 STEM Workshop on Research Based Pedagogical tools (RBPTs) for undergraduate teachers at IISER, Pune,
7.	Vijay J. Vig Roshan D’Souza	STEM Teacher Training Workshop on Research Based Pedagogical Tools held from 23 rd -25 th January, 2017 at IISER, Mohali
8.	Shraddha Prabhu	Short term training program organized by UGC HRDC under RUSA on ‘Contemporary strategies for teaching and Evaluation’ at University of Mumbai
9.	Shraddha Prabhu	Hands-on training workshop on ‘Bioinstrumentation’ at KBP College, Vashi
10.	Roshan D’Souza	Level II RBPT workshop organized by DBT at IISER, Pune
2017-18		
11.	Yasmin Khan	Workshop on PFMS, which is now mandatory to implement with all projects
12.	Arjumanara M Surti Shraddha Prabhu Rajbinder Dehiya	Workshop on ”Integrating Concepts in Undergraduate Biology Laboratory Course” organized by HBCSE
13.	Shraddha Prabhu	Workshop on ‘Confocal Microscopy’ sponsored by Carl - Zeiss’ at IIT Powai, Mumbai
14.	Shraddha Prabhu	Seminar workshop on Avishkar Research Convention at Golwala College Ghatkopar
15.	Prabha Shetty	Workshop on Current Amendments in Academic Performance Indicator (API) for College Teachers and Developing E-content organized by Elphinstone College, Mumbai
16.	Prabha Shetty Sirisha Murthy Lynelle Jeysus	Hands-on-workshop on organic electronics organized and conducted by Prof. Amitabh Banerji in collaboration with TIFR, Mumbai
2018-19		
1.	Yasmin Khan Sree Nair Arjumanara M Surti Jyoti Mantri Shraddha Prabhu	National level workshop on CAS process and MOOCs by the IQAC at Sophia College (Autonomous)

	Prabha Shetty Rochelle Ferns Tanaz Asha Meeta Saxena Roshan D'souza Sandhya Kadiru Madhavi Kaji Chinmoyee Vatsyayan	
2.	Yasmin Khan	Session on Data Validation and Verification & Revised Accreditation and Self-study Report at V.G.Vaze College
3.	Sree Nair	National Hands-on Training Workshop on Innovative Experiments in Biological Sciences for College teachers under Star college scheme at Ruia College,
4.	Aisha Zakaria	Workshop on "Cellular and Molecular Biology – from gene cloning to protein expression and localization" at UM- DAE Center for Excellence in Basic Sciences in association with LTMT
5.	Arjumanara M Surti Shraddha Prabhu Madhavi Kaji Chinmoyee Vatsyayan	Short term course on 'History of Food' organized by Sophia College
6.	Arjumanara M Surti	STEM teacher training workshop on Research-Based Pedagogical Tools (Level 1), Jaipur
7.	Arjumanara M Surti Shraddha Prabhu	Short term Course on Nanosciences and Nanotechnology held at University of Mumbai
8.	Arjumanara M Surti	CME on Hematology: The New Frontiers, Sophia College
9.	Jyoti Mantri	National conference Biofacet 2018-19 at Patkar College, Mumbai
10.	Jyoti Mantri	Presented a paper on 'Biofilms- stopping the microbial chatter', at an International Conference, on Biotechnology for Better Tomorrow-2020 Microbiologists Society, India and Maldives National University, Male.
11.	Vijay Vig	Pedagogy workshop on Geneticus Investicago, KJ Somaiya College.
12.	Rajbinder Dehiya Roshan D'Souza	"Writers' Workshop on Research-Based Pedagogical Tools" held at IISER, Pune
13.	Shraddha Prabhu	Conference on 'The Immunology of Human Tuberculosis: The Mendelian susceptibility to Mycobacterial disease and beyond' organized by Bai Jerbai Wadia Hospital
14.	Shraddha Prabhu Sandhya Kadiru	LTMT sponsored Teacher Training workshop in 'Experimental Approaches for Drug studies', Sophia College
15.	Tanaz Asha	National Seminar on Communicating Recent Developments in Science- 2019 organised by The Institute of Science, Mumbai
16.	Gajanan Gurav	Workshop on 'Maintenance of Laboratory instruments' at Somaiya College Vidya Vihar
2019-20		
	Tanaz Asha Rochelle Ferns	Refresher Course in Chemistry, Mumbai Univ. Kalina

2.	Prabha Shetty, Rochelle Ferns, Tanaz Asha, Lynelle Jeysus, Rajani Khandagale.	Short term Certificate course by the United nations on IYPT
3.	All science faculty	Sophia Nobel Oration lecture ‘ HIFfing & Puffing up the Hypoxia Hill’
4.	All science faculty	Work shop on evaluation by Dr Andrea Coutinho and Dr Ivan John, Sophia College
5.	All science faculty	‘Frontiers in Science’, Sophia College with Jadavpur University Alumni Association (JUAAM)
6.	All science faculty	Workshop “Percolating Newer Teaching Trends to the Classroom” organized jointly by the Dept of Chemistry- Sophia College, Jaihind College and St. Xavier’s College.
7.	All faculty, Microbiology	Career options in Medical Laboratory Technology, Sophia College
8.	Arjumanara M Surti	Nanotechnology by Deepa Khuslani, Sophia College
9.	All Faculty	2 day Lecture workshop ‘The Cell and Time’ Sophia College
10.	All faculty, Microbiol.	Mini Symposium – Challenges in Breast & Cervical cancer
11.		Workshop on ‘Problem solving in Science’ at SIES College
12.	Meeta Saxena	Refresher Course "Data Science and Artificial Intelligence"
13.	Meeta Saxena	Attended workshop on 'Uncertainty Analysis in Physics Experiments"
14.	Meeta Saxena	Attended one day National Level Workshop on Revised PBAS Form & API Calculation under CAS (after 4th Amendment) & on MOOCs
15.	Meeta Saxena	Poster Presentation "Thermally Stimulated Discharge Conductivity (TSDC) of doped polyblend" on Humboldt Kolleg 2020 on "FLOW"
16.	Meeta Saxena	Attended workshop on "Laser, Fiber Optics & Optical Communication" by Indian Women Scientists' Association in collaboration with NASI (Mumbai Chapter).
17.	Roshan D’Souza	Participated and contributed as resource person at one day workshop based on ‘M.Sc. Part I Zoology – Revised Syllabus 2019-20’ held at M. D. College, Parel.
18.	Roshan D’Souza	Attended and contributed in ‘One day workshop for Peer Review Mumbai University Zoology Textbook held at C.H.M. College, Ulhasnagar
19.	Roshan D’Souza	Attended a workshop on New CAS Guidelines, organized by Wilson College in collaboration with MU,
20.	Sandhya Kadiru	Attended workshop on ‘CAS – 7th Pay Commission organized by K.C College
21.	Sandhya Kadiru	Workshop on CAS and API Calculations Under the 7th Pay Commission by Maharashtra College of Arts, Science & Com
22.	Sandhya Kadiru Sree Nair	Workshop on Ignite and Innovate – Techniques in Research organized by St.Xaviers College
23.	Sandhya Kadiru	National Level Faculty Development Programme on E-content Development, by Somaiya College of Science and Commerce
24.	Madhavi Kaji	Seminar on Behavioral Intelligence using DiSC Profile organized by Master My Life in association with Garware


		Institute of Career Education and Development, University of Mumbai.
25.	Madhavi Kaji	National Conference : 'India in Space and Nuclear Energy: Achievements & Challenges' Jointly organizes by NCSC, Nehru Science Centre, NES & Saraswathi Vidya Bhavan
26.	Madhavi Kaji	Program on 'Recent Trends in Science Journalism and Science Communication' organized by the Public Relations Society of India (Mumbai Chapter) in association with NCSC and University of Mumbai
27.	Sree Nair	Refresher Course in Biosciences from 10th October to 24th October, 2019 at Birla College, Kalyan organized by UGC HRDC, University of Mumbai
28.	Sree Nair	Workshop on Ignite and Innovate-Techniques in research organised by St. Xavier's College
29.	Sree Nair	'Biowaves 2020'RUSA supported symposium organised by St. Xavier's College
30.	Bhavna Daswani Snehal Martins	Science Academies' Education Program Short-Duration Workshop on Recent advances in Stem Cells Research – Biomedical applications organized by Jai Hind College
All faculty have attended an average of 10 or more webinars during the lockdown period Total numbers of webinars consolidated are 214		

Sudha Patel

Annexure 5
Exhibitions/seminars/training courses conducted

Type of event	Name of event	Department conducting event	Participating department/s	No. of beneficiaries
2016-17				
Workshop	Workshop for laboratory staff on use of pH meter	Life Sciences	Lab staff of all other depts	15
Workshop – 2 days	Techniques in molecular biology – with experts from Hi-Media	Microbiology	UG and PG students	80
2017-18				
Workshop	Genome Awareness Program by Bionivid Technology	Life Science with KC college	UG students from several Mumbai colleges	150
Exhibition	Poster presentation on Tuberculosis Awareness: “TB Harega Toh Desh Jeetega”	Life Sciences	Attended by all students of the college	35 students presented
Exhibition	Beef Ban and crisis “Holy Cow and Unholy Violence”	Life Sciences & Dept of Education	Attended by all students of the college	25 students presented
Soft skills presentation	Introduction to effective application and CV writing	Life Science	Life Science	23
Workshop	Good Science writing	Life Science	UG students of all science depts	73
Exhibition	World Wetlands Day	Zoology	All UG science students	24 students presented
Science Day	Working models Poster on Ecosystems of India Posters presenting research projects	Physics Zoology PG students	All UG and PG Science students	At least 300 students
Workshop	First Aid techniques	Zoology	FYBSc students	28
Workshop	Nutrition	Zoology	FY & SY	46
Workshop	Regional workshop on RBPT at Sawantwadi – conducted by Dr. Roshan D’Souza & Dr. Rajbinder Dehia	Zoology Microbiology	Faculty of Sindhudurg District	57
2018-19				
Exhibition	‘Plant-Pluck-Provide-Perish’- on farmer distress	Life Science	Attended by all students of college	25 students presented
Workshop	“Basic Photography” and use of different DSLR cameras	Life Science	UG and PG students of LSc	25
Exhibition and Games	Darwin Fest	Life Sciences	UG students from all Science Depts	30 students organized

Certificate Course	Science communication	Life Sciences & Microbiology	FYBSc students	23
Film Competition, Models	Plastic Pollution awareness	Microbiology	All UG students of the department	85
Exhibition	Vaccination awareness drive	Microbiology	All Sciences students	32
Interactive session	“LGBT- the psychological perspective”,	Microbiology & Psychology	Students from both departments	60
Workshop	‘Safety in Laboratory’	All Science Depts	Students and lab staff of all depts	90
Workshop	‘Methods of Dyeing’	Chemistry & Art Dept of Polytechnic	TY students of Chemistry	31
Seminar	Careers in scientific communications – with follow up tests	Biochemistry	BA, BSc, MSc students	50
Exhibition	Mangroves in Mumbai by Godrej Vikhroli Mangrove Conservation Centre	Zoology	All UG Science students	Over 100
Weekly Updates	ZOOBUZZ- National Parks and Sanctuaries of India	Zoology	All UG Science students	25 FYBSc presented
2019-20				
Seminar	Role of catalysts in Green Chemistry Revolution	Chemistry with IWSA	UG Chemistry students	150
Online workshop	Secrets of effective communication’	Chemistry and Sophia NSS	Open to all students	90
Competitive events	Meld it up	Biochemistry	All college students	Over 200
Demo of practicals	Demonstration of experiments by Sophia students and faculty	All Science departments	Exchange students of Kohima college	25 Sophia and 8 Kohima students
Competition	‘Microvaganza’- Rangoli design & poster making	Microbiology	Inter collegiate	25
Competition	“PETRI ART- creative plating of microorganisms	Microbiology	All science departments	12
Online Workshop	Scientific writing	Life Sciences & Microbiology	Life Sciences & Microbiology	73
18 th Annual Sophia-Nobel Oration	‘Hiffing and Puffing Up Hypoxia Hill’	Life Sciences	Students & faculty from Sophia & other colleges	156
Science Day Celebration	Quest – Wider than the Sky” – UG & PG research presentation and talk	All Science departments	All UG and PG students	45 students participated

 Indicates that the activity was undertaken as a collaboration

Signature

Annexure 6

Few Outreach Activities conducted

Community Outreach Program

As part of the department's outreach program. T.Y.B.Sc students of Life Sciences along with some T.Y.B.A students of Education Department, went to Rajgurunagar, Khed Taluka, Pune.

They undertook the following activities

- Interacted with primary school students in creating an awareness about the environment
- Taught secondary students' topics in Physiology, Chemistry, and Physics.
- A special session on Reproductive biology was conducted.
- Participated in 'Shramdan' where they helped in road maintenance.
- Conducted workshops for women on nutrition and health.

Students Exchange Program

Eight SYBSc students from the college participated in the Solidarity Student Exchange Program (SSEP) 2019-20", an initiative of the Drs. K and T Kreditsu Foundation, Nagaland. Under this program, eight students from Kohima Science College, Nagaland had visited Sophia College from 8th to 15th September 2019. These students visited Nagaland from 9th to 15th February 2020 and actively participated in all activities, discussion and deliberations during this time

Plastic Pollution awareness

The Microbiology department organized a series of activities in the month of July 2018 to raise awareness on the environmental impact and hazards of the use of plastics and promote more sustainable solutions. These were i) Short film screening; ii) Slogan writing competition to support plastic ban - Break free from Plastics; iii) I choose to reuse- Innovative ideas to replace/reuse/recycle plastics presented in the form of models, crafts, artistic creations; iv) Poster / Flyer/Illustrations - Is your life too Plastic? Identify ways to describe ill effects of plastics

Nobel Oration lecture Series:

Annual Sophia Nobel Oration describing the Nobel Prize winning work by eminent scientists working in the field is held every year in the field of Physiology or Medicine, Chemistry, Physics and Peace

RBPT Workshop

After completing 2 Levels of Training workshops on Research Based Pedagogical Tools (RBPT) organized by CoESME under the aegis of IISER, Pune and in collaboration with British Council, **Dr. Roshan D'Souza** in the capacity of Lead Trainer organized the Regional RBPT workshop at Shri Pancham Khemraj (SPK) College, Sawantwadi from 9th to 11th January, 2018. **Dr. Rajbinder Kaur Dehiya** was the Subject Trainer for the Life Science group It was specially organized for the teachers of Sidhurg District in order to share the idea of RBPT as an innovative pedagogy and to give them actual training to craft the RBPTs in their own subjects

SEED (Science Education through Experiments and Discovery) – This initiative started a few years ago continues to remain an outreach program where students from Gopi Birla Memorial School and Dr. Sarvepalli Radhakrishnan Int. School were given hands-on experience in basic biological experiments by students of TYBSc (peer teaching) and were shown the Research Facility in the college where they observed model organisms (such as *Drosophila*, zebrafish, *C. elegans*, *Dictyostelium* and hydra) used by the PG students to carry out their projects.

Municipal School visit

Haloli Municipal School visit and interaction with students of class 1-4. S.Y.B.Sc students of our College made presentations in Biology (DNA and its function) and Geography (Our planetary system) to the Municipal school students. This activity was done in association with NSS.

A handwritten signature in black ink, appearing to read "Ananda Prasad", with a horizontal line underneath it.

Annexure 7
List of Popular and Invited lectures conducted

2016-17

Sr.No	Speaker/ organization	Topic
1	Dr. Veena Yardi, Assoc Prof, Nirmala Niketan College	Importance of Pulses in Diet, especially for young women
2	Dr. Ravi Manjithaya, JNCASR, Bengaluru	“Self Eats Self – Autophagy in Health and Disease” Sophia Nobel Oration
3	Ms Naziya Chowdhury, Ph.D- JRF, ACTREC	“Mice: Model for infectious disease and Cancer”
4	Dr. Saranath, Prof, Sunandan Divatia School of Science	Awareness of throat cancer
5	Ms. A. Jamwal	Mysteries of the Mind
6	Ms. Gomati Shridhar, Menon College	‘Molecular Machines’ as part of Nobel oration lecture series
7	Mr. Sachin Dedhia, Cyber-crime Investigator, SkyNet	‘Cyber Crime’
8	Mr. Jayant Joshi, Consultant, Municipal Corporation	Composting kitchen waste
9	Mr. Sayed, Professional Infotech, Chennai	Healthcare and its opportunities
10	Dr. Pushpinder Bhatia, VP and Head, Gurunanak College	‘Demystifying smart materials’
11	Mr. Govind Jha, Civil Defence	First aid workshop

2017 -18

Sr.No	Speaker/ organization	Topic
1	Andrej Sali (UCSF)	Scientific modeling , Bioengineering and Therapeutics
2	Caroline Pais & WWF	World Environment Day - Introduction to Ek Prithvi program
3	Rujuta Divekar	Wonder food for wonder woman

4	Advocate Irfan Engineer	Holy Cow – Challenges for Secularism,
5	Dr. Sheeba Vasu	“Having the time of our lives” Nobel Oration in Physiology/ Medicine
6	Prof. S.Saidapur, Dr.T. Nandedkar, Dr. N. Balasinor, Dr. Deepak Modi, Dr. Kersi Avari.	Science Academies’ sponsored Lecture Workshop ‘Evolving strategies to make an embryo: In nature and in the lab’
7	Dr. Tejal Kanitkar, TISS	Science and scientific temper
8	Arnab Bhattacharya, TIFR	Importance of Basic Research
9	Dr. Suman Govil, Mr. Tavinderjit Singh Vasudeva, Dr. Gary Hix, Mr. Jawed Zia, Ms. Pooja Ramchandran, Mr. Shreesa Srinivas, Dr. Dwarkesh Parihar	Career talks by eminent personalities from different fields
10	Dr. Sorab Dalal , ACTREC	Strategies to combat radio- and chemo-resistance in tumour cells
11	Prof. Turi King,	What’s in a name?
12	Dr. Ganesh Kamath	Microbial remediation of environmental pollution
13	Miss Jagruti W, Psychologist	“LGBT- the psychological perspective”
14	Dr. Subhojit Sen, UM-DAE Centre for Excellence in Basic Sciences	“How the environment can shape us? Querying Lamarckian heresy through Cancer Epigenetics ”
15	Ms. Asmita Sarkar, Junior Research Scholar, TIFR	“More the evidence, more the believability...”
16	Dr. Ramakrishnan, BARC	Analytical Instruments Touching Your Lives
17	Dr.Shyamala Bharadwaj, IWSA	Is water the coal for the future
18	Dr.Sharmila Banerjee, IWSA	Nuclear Medicine in Human Healthcare
19	Mr. Amar Deshpande	Importance of mangroves
20	Dr. Nagaraj Balasubramaniam, IISER, Pune	Cell in 2D vs 3D
21	Andrej Sali (UCSF)	Scientific modeling , Bioengineering and Therapeutics

2018 – 19

Sr.No	Speaker/ organization	Topic
1	Ms. Zakia Soman, Bharatiya Muslim Mahila Andolan	“Muslim womens’ struggle for gender justice”
2	Mr Panchal, Camera Specialist, Nikon	“Basic Photography” and use of different DSLR cameras
3	Prof. Ravi Gooneratne. Lincoln University, New Zealand	“Effect of Environment on Food Safety and Crop Production”
4	Dr. Ullas Kolthur, Department of Biological Sciences, TIFR.	“ Braking news: Cancer Immuno-therapy accelerated” Nobel Oration in Physiology and Medicine
5	Dr. Subhojit Sen, UM-DAE Centre for Excellence in Basic Sciences	“How the environment can shape us? Querying Lamarckian heresy through Cancer Epigenetics ”
6	Dr. Ajit Datar, Shimadzu, in collaboration with IWSA	Food Adulteration
7	Dr. Mukesh Gupta, practicing Gynaecologist	Woman- A key to family’s health
8	Prof. Radha Jayaram and her team from ICT	‘Safety in Laboratory’
9	Dr. George Abraham, Vice Principal, SIES College	Chem Careers
10	Dr. Harish Shetty, Practicing Psychologist	Interactive session on “Love Life and learning.
11	Dr. G. Ravindra Kumar, Nuclear and Atomic Physics, TIFR.	“Extreme Optics” Nobel Oration in Physics
12	Mr. Shane Rydquist, Cactus Communications	Careers in Scientific writing

2019 – 20

Sr.No	Speaker/ organization	Topic
1	Mariah Gour – Ghouri	‘Surrogaey : An Indian Context today’
2	Samanth Subramanian	‘A Dominant Character: The Science & Politics of J.B.S. Haldane’

3	Dr. Shashi Bala Singh (Director, NIPER, Hyderabad)	'Hiffing and Puffing Up Hypoxia Hill'
4	Dr. M.R. Ramesh Kumar (Chief Scientist, National Institute of Oceanography)	'Climate change, oceans and its impact on Mumbai'
5	Dr. Deepa Subramaniam (National centre for cell science, Pune)	Stem cells: a double edged sword'
6	Dr. Ketan Marballi ex-student	'Early Growth Response 3: A novel regulatory DNA repair in the nervous system'
7	Dr. Satyajith Rath, IISER, Pune	Webinar on 'Covid-19: An immunologist's perspective'
8	Ruzbeh Mowdawala,, DCA, Sophia College, & Prina Shah	Career options in Medical Laboratory Technology
9	Deepa Khuslani, Scientist, TIFR	Talk on Nanotechnology
10	Dr Anupama Harshal	MANAV- the Human Atlas Initiative funded by DBT in collaboration with IISER-Pune, NCCS and Persistent Systems
11	Mr. Kailash, Career Counsellor	Opportunities after B.Sc and M.Sc in Chemistry'
12	Dr. Radha Jayaraman, HOD Chemistry Department ICT	'Role of catalysts in Green Chemistry Revolution'
13	Dr. Mukesh Gupta, Practicing Gynaecologist	'Health Impact of Social Media'
14	Dr Anand Shethi, HOD Chem Dept, National College, Bandra	'Today's readers are tomorrows leaders
15	Mr Sachin Dedhia, Cybercrime investigator from SkyNet	'E-mask: Protecting yourself online'
16	Dr. Sai Ram, VP Vaccine Division & Dr. Rajesh Medisetty Pharma Division, Biological E Ltd.	National webinar on 'SARS-CoV-2: Vaccines and Treatment
17	Dr Mukesh Gupta, Practicing Gynaecologist	Staying healthy during COVID -19 times
18	Mr. Ravi Shankar, Head of Publicity Division, DAE	Nuclear Power- Need, Myth and Reality
19	Jadavpur University Alumni Association	Symposium on 'Frontiers in Science'

We have organized these popular lectures in collaboration with organization viz. TIFR, IWSA, IISER Pune, UCSF, Department of Atomic Energy, DAE, Biological E. Ltd, Centre for Excellence in Basic Sciences (CEBS), NIPER, Hyderabad

