

**DEPARTMENT OF CHEMISTRY  
REPORT OF FIRST TERM 2021-22**

**Name of Staff:**

**Senior College:**

1. Dr. I.Mendes,
2. Dr. P.Shetty,Head of Dept
3. Ms. R.Ferns
4. Dr. S.Murthy
5. Ms. T.Asha
6. Ms. L.Jeysus
7. Sr. R.Khandagale
8. Ms. A. Quadiri
9. Ms. A. Menon

**Junior College:**

1. Ms. B. Gonsalves
2. Ms. S. Rathod
3. Ms. B.Shaikh

**A] TEACHING AND LEARNING:**

**I] Teaching Aids used:** In order to make the study of chemistry simple and interesting, a variety of teaching aids are used by the staff. These include:

**i. Ball and stick, molecular models, solid state models, chemistry molecular model kit:** Molecular models (made at home) give a 3-D view of the molecule and thus help students to visualize the molecule and understand the molecular structure better. These were used for topics like:

- Hybridization-LJ,
- Students were assigned to make models to help understand the stereochemistry of the molecules-SM
- Molecular symmetry-RF,
- Sample thief working model -PS
- TYBSc students made models using clay and wheat flour to understand the different types of packing and layering in solids.- TA

**ii. Practical demonstrations:**

SYBSc students were trained to prepare turmeric paper and test the alkalinity of various substances at home -RF

**iii. Use of PowerPoint presentations by staff:**

Powerpoint presentations were prepared for all the topics and subtopics in the syllabus -IM, PS, SM, RF, TA, RK, LJ,AQ, and AM

Interactive PPTs were also used-PS

#### iv. Creative activities used for teaching chemistry:

- Relevant videos on various topics were shown during lectures.IM, PS, SM, RF, TA, RK, LJ,AQ and AM.
- Applications like pubchem, chemtube were used to show the 3D structures of molecules for better understanding-SM, LJ and RK
- Assigned Jamboard activities -PS, LJ
- Applications like chemdraw were used to teach some topics-LJ
- Creating illustration/ infograph/ timelines of discoveries using suitable app:
  - Principle of cation exchange chromatography illustration was explained and the students were asked to create an illustration depicting Principle of anion exchange chromatography, classification of chromatographic methods and applications of IEC-PS,
  - Applications of Zeta potential - RK
  - Creating videos on various topics of Environmental Chemistry like -Air pollution, Bhopal gas tragedy, Minamata disease, soil pollution, Chernobyl disaster and heavy metal pollution.-PS
  - Assignments on molecular symmetry, dyes, lanthanides and actinides to help students correlate what they learn to everyday life.-RF
  - Natural and synthetic dyes-LJ
  - Creation of a flow chart/brainstorming exercise using 'Miro' application-PS, SM, LJ, RK and AQ.
  - Students of SYBSc class were assigned to make pictographs of the reactions learnt to an industrial application- SM
  - Catalysts and Reagents, Infographics on TQM, GLP - SM
- Demonstrated how to prepare graphs using excel.-LJ and AQ
- Demonstrated how to use % composition calculator, concentration calculator app, molecular generator.-PS
- Simulations were used to explain 'Rotational and Vibrational spectroscopy' and some topics on pollution-PS and RK.
- Flipped classroom: videos and PDF were sent before the classroom and then the topic was discussed in the class.-PS, LJ,TA and RK
- Use of comic strip for brainstorming-PS
- Shared Infograph for revision, Interactive PDF from various sites shared e-books and important links of reference material and videos,interactive illustrations,video recording of lectures (powerpoint screen recorder and Screencast O'Matic)-PS,RK
- Explained various mechanisms to SY B.Sc students with the help of alchemie- a game application which helped predicting the movement of electrons in the mechanism-SM
- Used Doceri application to teach through blackboard and zoom whiteboard for students to interact-SM
- Used Chem-Libre text document -SM

- As we were using an online medium of teaching, a number of quizzes were conducted before/during/ after the lecture/practical to check the understanding of the various concepts taught in the lecture/practical.  
The following applications were used for administering the quizzes: Google forms, nearpod, wordsearch, kahoot, testmoz, wordmint, PPT, crossword labs, quizizz.-PS, SM, LJ, TA and RK.

#### v. Other teaching strategies

##### Worksheets were provided to students on topics like:

- Atomic spectroscopy, superconductivity, from sites like sanfoundry.com, scholarsexpress.com etc -TA
- Construction of molecular orbitals, formal charge and Lewis dot structures for TYBSc class and IUPAC, hybridization for FYBSc class.-LJ
- Numericals on non-directional bonding for SYBSc class- RF
- 2.5d, 4d and Q test, Null hypothesis:T-test and F-test, Graphical representation of data: Method of averages, method of least squares, Confidence limit, confidence interval, normality, molarity, ppm, interconversion of concentration units, empirical formula, mole fraction and percentage composition, single step, multistep extraction and percentage extraction, distribution of solute in counter current extraction for TYBSc class-PS
- Types and sources of errors, mean, median, standard deviation, range, variance, deviation, relative average deviation, error: absolute error and relative error, significant figures for SYBSc class-PS
- Numerical worksheet was given for practicing numericals to TYBSc and SYBSc students - RK

#### III] Teaching learning in the laboratory (Virtual Practicals) :

- Used various simulations and videos for demonstration of practicals -IM, PS, SM, RF, LJ, RK,AQ, AM.  
Students used readings generated by the simulation(instrumental experiments) and performed calculations.-PS, RK.
- Made simulations for SMQA for the SYBSc class-LJ
- Made simulations for Organic Separation for the TYBSc class-SM, LJ
- Interactive quiz, videos using Nearpod - SM LJ
- Use of Miro app for interactive and group learning for organic separation - SM LJ
- Pre-lab and post-lab assignments-PS, LJ, RK
- Interactive worksheets were prepared -PS.
- Experiment applets were shared to study the effect of concentration and volume of the titrant and titrand on the nature of the graph.-PS
- Video recording of the experiment done by Sr. Rajani was shared with the students.

**III] Teaching chemistry- Beyond the classroom:** In working towards the College mission of providing holistic growth to students, the chemistry department organises a

variety of activities for the students. These activities aim at exposing students to frontier areas of chemistry beyond the syllabus.

**i) Invited lectures:**

- Webinar on 'Chemistry of Warfare' by Dr Prabodh Chobe organised jointly by the Chemistry and History Department held on 17<sup>th</sup> July 2021.
- Webinar on 'Applications of Radioisotopes in Healthcare: with emphasis on Radiopharmaceuticals' by Dr. Meera Venkatesh organised by the Chemistry Department in collaboration with IWSA on 24<sup>th</sup> July 2021.
- Webinar on 'Handling women's health in covid times' by Dr. Mukesh Gupta on 28<sup>th</sup> September 2021.

**ii) Literature surveys/ research work under EXSP program-**

- a) **Literature surveys** - Guided Ms Iqra Patel of TYBSc in her literature survey component - 'Synthetic Biodegradable Polymers' - RK
- b) Guided Ms Mariyah Khatri of TYBSc in her literature survey component - 'Colour Psychology' - PS

**b) Research projects: NIL**

**iii) Chemistry Club:** Sr. R.Khandagale and Ms. L.Jeysus are the co-coordinators of the club for 2021-22. Activities organized in the College as follows:

- Chemistry Quiz 'GENIUS' for the Junior College students organised by the TYBSc students via Zoom Platform on 30<sup>th</sup> July 2021.
- Department logo making competition for UG and PG students.
- National Level Quiz 'Yeh Mera India' Commemorating the 75<sup>th</sup> Independence Day organised by the SYBSc and TYBSc students via Google forms on 15<sup>th</sup> August 2021.
- Intra Collegiate Digital Poster Making Competition for UG and Junior College students commemorating the 110<sup>th</sup> year and centenary year of Nobel Prize winners Marie Curie and Einstein respectively organised by the SYBSc students.

Students were also encouraged to participate in a number of inter collegiate events:

- 33rd All India Online Essay Contest on Nuclear Science and Technology on 16<sup>th</sup> August 2021 -(5 students)
- Think like a Proton and Stay positive Quiz organised by SIWS College on 20<sup>th</sup> July 2021. (17 students)
- Fundamentals of Chemistry Quiz competition organised by Rajiv Gandhi College of Art, commerce and Science on 23<sup>rd</sup> August 2021.(14 students)
- Mission O<sub>3</sub> Quiz organised by K. J. Somaiya College on 16<sup>th</sup> September 2021. (2 students)

iv) **Field trips:** Nil

**IV] Other activities organized by the Department:**

i) **Creating awareness:** Nil

ii) **Student development activities:** :

- MSc students completed an E-internship on Computational Tools in Chemistry organised by Jai Hind College from 7<sup>th</sup> to 12<sup>th</sup> June 2021.
- TYBSc and SYBSc students were a part of the outreach program with Aseema, wherein each student was assigned two students from a Municipal school to conduct online classes on a assigned topic biweekly for a month. Co-ordinated by SM, Teacher mentors IM,SM,RF,TA,LJ,RK,AQ,AM
- Conducted a session on higher education opportunities in India and abroad for TYBSc students in September 2021-RF
- Students participated in the 37<sup>th</sup> Aptitude test in Chemistry organised by ICT and K.C. College on 26<sup>th</sup> September 2021

iii) **Student follow up through contact group:**

iv) **Staff –student fun activities:**

v) **Others:**

- RBPT project assigned to students of TYBSc to extract dye from natural sources available at home and dye fabric using the extracted dye, and vary a parameter (like fastness, type of fabric etc.) compare the effect of the parameter on the hue and submit a report with pictures of the dyed fabric.
- Peer teaching, students presented on the life of scientists like Marie Curie and Lise Meitner during the lectures and had a discussion after.-IM

**B] STAFF ACTIVITIES:**

**I] Workshops, seminars, conferences, talks attended/organised in the college:**

- Goal sharing meeting on 17<sup>th</sup> June 2021. Attended by IM,PS,RF,SM,TA,LJ,RK and AQ.
- International Webinar on ‘ChemLibreText as an Open Education Resource’ by Dr Delmar Larsen for the Chemistry Teachers all over India, organised by the Chemistry Department on 9<sup>th</sup> July 2021. Attended by IM,PS,RF,SM,TA,LJ,RK,AM and AQ.
- Webinar on ‘Launching Add-on courses: Key Components’ by Dr Roshan D’souza on 10<sup>th</sup> July 2021. Attended by IM,PS,RF,SM,TA,LJ,RK and AQ.
- Webinar on ‘Chemistry of Warfare’ by Dr Prabodh Chobe organised by the Chemistry and History Department held on 17<sup>th</sup> July 2021. Attended by IM,PS,RF,SM,TA,LJ,RK and AQ.
- Webinar on ‘Applications of Radioisotopes in Healthcare: with emphasis on Radiopharmaceuticals’ by Dr. Meera Venkatesh organised by the Chemistry

- Department in collaboration with IWSA on 24<sup>th</sup> July 2021. Attended by IM,PS,RF,SM,TA,LJ,RK and AQ.
- ‘Virtual Safari of Tadoba National Park’ organised by Nature Club in collaboration with the Zoology Department by Dr Sudhir Gaikwad on 24<sup>th</sup> July 2021. Attended by TA and LJ.
  - Chemistry Quiz ‘GENIUS’ for the Junior College students organised by the TYBSc students via Zoom Platform on 30<sup>th</sup> July 2021. Attended by IM,PS,RF,SM,TA,LJ and RK.
  - ‘PCOD & other menstruation related problems in Women’ by Dr Mukesh Gupta organised by Microbiology Department on 3<sup>rd</sup> August 2021. Attended by LJ
  - Webinar on ‘Mindfulness - Nikhila Sharma CFM Global’ organized by Psychology department on 20<sup>th</sup> August 2021 - attended by RK
  - ‘Scientific Temper: Antidote To Superstitious beliefs’ organised by Life Science Department in collaboration with NSS on 20<sup>th</sup> August 2021. Attended by PS, RK, LJ, RF.
  - Teachers day celebration organised by the CUC on 4<sup>th</sup> September 2021. Attended by PS,RF,SM,TA,LJ, RK, and AM
  - ‘10 ways to Mindful Eating and Healthy Living’ by Ms Vibha Hasija organised by NSS Unit on 8<sup>th</sup> September 2021. Attended by RF,LJ,TA
  - Academic Audit on 20<sup>th</sup> September 2021. Presented by PS attended by RF,SM,TA,LJ, RK, AM and AQ.
  - ‘Archaeobroma-the archaeology of food’ by Dr. Kurush Dalal organised by the History Department on 25<sup>th</sup> September 2021. Attended by LJ, RK
  - Handling women’s health in covid times by Dr. Mukesh Gupta on 28<sup>th</sup> September 2021. Attended by PS,RF,SM,TA,LJ,RK, AM and AQ.

### **III Workshops seminars, conferences, talks,etc. attended outside the college:**

- Three week course on ‘Gateway to Health- Essential Oral Hygiene and Habits for a Healthy Smile OE4BW-UNESCO program’ May-June 2021. Attended by TA
- Webinar on ‘World Environment Day’ on 5<sup>th</sup> June 2021 organised by K J Somaiya College of Arts and Commerce, Vidyavihar. Attended by TA
- National workshop on ‘Current practices for Assessment in teaching and learning Process’ - organized by Chandigarh University on 25<sup>th</sup> June 2021 - Attended by RK
- Webinar on "CAREER PROSPECTS IN CHEMISTRY" organized by CCSMC & DEPARTMENT OF CHEMISTRY on 7<sup>th</sup> July 2021 organized by Maharashtra College. Attended by TA
- Webinar on "Strengthening Your Understanding of Research Journals" KJSSC- Elsevier, 10<sup>th</sup> July 2021. Attended by TA
- National Webinar on Recent Advances in Chemistry organized by Department of Chemistry, Govt. Gajanand Agrawal Post Graduate College, Bhatapara (C.G.) on 26<sup>th</sup> July 2021. Attended by TA

### **III] Contribution to Department and College administration/activities:**

#### **i) Dr P Shetty**

- a) Head of the department
- b) Member of BOS-Chemistry Sophia College (Autonomous)
- c) Science stores In-charge
- d) M.Sc Part II class In-charge
- e) Member of Academic audit committee
- f) MSc exam committee member
- g) NAAC infrastructure committee member
- h) Incharge for keeping Alumni record

#### **ii) Ms. R Ferns**

- a) Member of BOS-Chemistry Sophia College (Autonomous)
- b) S.Y.B.Sc. class In-charge.
- c) NSS Program Officer.

#### **iii) Dr S Murthy:**

- a) Co-ordinator- for the College (Star Status)
- b) Member of BOS-Chemistry Sophia College (Autonomous)
- c) Co-ordinator, EXSP program
- d) Co-ordinator, Time Table Committee
- e) Member, Admission Committee
- f) M.Sc Part-I In-charge

#### **iv) Ms. T Asha:**

- a) Member of BOS-Chemistry Sophia College (Autonomous)
- b) Member, Sigma Club
- c) Member, Exam Committee
- d) Member, Magazine Committee
- e) T.Y.B.Sc. Class In-charge
- f) Co-ordinator, IQAC sub- committee for workshops
- g) Member, Nature Club
- h) Teacher -in charge, CUC

#### **v) Ms L.Jeysus**

- a) Co-opted Member of BOS-Chemistry Sophia College (Autonomous)
- b) Co-ordinator –MSc Analytical Chemistry
- c) Co-ordinator- Chem Club
- d) Member-IQAC documentation, feedback sub committee
- e) Member-Teaching Learning and evaluation -NAAC sub committee

**vi) Sr. R.Khandagale**

- a) Co-opted Member of BOS-Chemistry Sophia College (Autonomous)
- b) Hostel Dean
- c) Co-ordinator- Chem Club.
- d) FYBSc class In-charge.
- e) Member-Student Support and progression - NAAC sub committee
- f) Member - Student welfare committee
- g) Member - Attendance committee (Science)
- h) Star College coordinator for Chemistry Department

**IV] Contribution to Quality Assurance Diploma program**

**V] Contribution to NSS activities:**

**VI] Professional development:**

Two week FDP “Chemistry-The Catalyst for Change” organized by TLC Ramanujan College, University of Delhi under the aegis of Ministry of education PMMMNMTT from 14<sup>th</sup> July -28<sup>th</sup> July 2021. Attended by TA

**VII] Staff research:**

**VIII] A. Research publications:** nil

**VIII B. Other publications: Educational resource**

Publication on OER/Creative common sites-PS

**IX] Examination work**

**i) Dr. I. Mendes:**

- a. Assessment of MSc Semester II- Paper I presentations on 23<sup>rd</sup> June 2021.
- b. Paper setter and Examiner for MSc Semester II (Paper I) Practical Examination held in July 2021

**ii) Dr. P. Shetty:**

- a. Paper setting and assessment of MSc Semester I ATKT-Paper III held in July 2021
- b. Paper setter and Examiner for MSc Semester II (Paper IV) Practical Examination held in July 2021.
- c. Paper setter and practical examiner for TYBSc Semester V Paper IV held in October 2021.
- d. Paper Setting, assessment of SEE and IA papers of Sem III and V.
- e. Paper setter and Examiner for SYBSc Practical Examination held in October 2021.
- f. Invigilation of Odd Semester End Examination.



- g. Paper Setting and assessment of IA of MSc Semester I-Paper IV and Semester III-Paper I

**iii) Ms. R. Ferns:**

- a. Paper setter and practical examiner for TYBSc Semester V Paper II held in October 2021.
- b. Paper Setting, assessment of SEE and IA papers of Sem III and V.
- c. Paper setter and Examiner for SYBSc Practical Examination held in October 2021.
- d. Invigilation of Odd Semester End Examination.
- e. Paper Setting and assessment of IA of MSc Semester I-Paper II.

**iv) Dr. S. Murthy:**

- a. Paper setting and assessment of MSc Semester I ATKT-Paper III held in July 2021
- b. Paper Setter and Examiner for MSc Semester II (Paper III) Practical Examination held in July 2021.
- c. Paper setter and Examiner for TYBSc Semester V Paper III Practical Examination held in October 2021.
- e. Paper setter and Examiner for SYBSc Practical Examination held in October 2021.
- f. Paper Setting, assessment of SEE and IA papers of Sem III and V.
- g. Invigilation of Odd Semester End Examination.

**v) Ms. T. Asha:**

- a. Invigilation of ATKT examination held in June 2021
- b. Paper setter and Examiner for MSc Semester II (Paper II) Practical Examination held in July 2021
- c. Paper setter and Examiner for TYBSc Semester V Paper I Practical examination held in October 2021.
- d. Paper Setting, assessment of SEE and IA papers of Semester V.
- e. Invigilation of Odd Semester End Examination.
- f. Paper Setting and assessment of IA of MSc Semester I-Paper II and Semester III-Paper I, II and III.

**vii) Ms. L. Jeysus:**

- a. Assessment of MSc Semester I- Paper III presentations on 28<sup>th</sup> June 2021.
- b. Invigilation of ATKT examination held in June 2021
- c. Paper setting and assessment of MSc Semester I ATKT-Paper III held in July 2021
- d. Invigilation of MSc Semester II examination held in August 2021.

- e. Paper setter and examiner for SYBSc ATKT Practical Examination held in July 2021.
- f. Paper setter and examiner for TYBSc Semester V Paper III and Applied Component Practical examination held in October 2021.
- g. Paper setter and Examiner for SYBSc Practical Examination held in October 2021.
- h. Paper Setting, assessment of SEE and IA papers of Sem V.
- i. Invigilation of Odd Semester End Examination.
- j. Paper Setting and Assessment of IA of MSc Semester I-Paper III.
- k. Assessment of MSc Semester III- Paper IV presentations on 27<sup>th</sup> October 2021.

**vii) Sr. R.Khandagale:**

- a. Invigilation of ATKT examination - June 2021
- b. Invigilation of MSc Semester II examination - August 2021
- c. Paper Setting, assessment of SEE and IA papers of Sem III and V.
- d. Invigilation of Odd Semester End Examination - October 2021
- e. Paper Setting and Assessment of IA of MSc Semester I-Paper I.
- f. Invigilation of MSc Semester II examination - August 2021
- g. Paper setter and Examiner for TYBSc Semester V, Paper IV and AC Practical examination held in October 2021.

**viii) Ms. Anjali Menon**

- a. Paper Setting, assessment of SEE and IA papers of Semester III and V.
- b. Invigilation of Odd Semester End Examination.
- c. Paper Setting and Assessment of IA of MSc Semester I-Paper I.
- d. Assessment of MSc Semester III - Paper I presentation on 25<sup>th</sup> October 2021.

**ix) Ms. A. Quidiri**

- a. Paper setting and assessment and Invigilation of MSc Semester I ATKT-Paper IV held in July 2021.
- b. Invigilation of MSc SEE and ATKT examinations.

**IX] Consultancy/Subject related work outside the college:**

- Appointed in Screening and Evaluation Committee for CAS held at Khalsa College on 30<sup>th</sup> June 2021- IM
- MSc part II semester III lectures for cluster college -PS,TA

**X] Others:**

- Conducted Interviews for the M.Sc Part I Admissions on 7<sup>th</sup> and 12<sup>th</sup> July 2021 -Dr. I.A.Mendes, Dr.P.Shetty, Dr. R. Ferns and Ms. L.Jeysus.

- TYBSc students and Staff organized a cultural program for Dr. Mendes' farewell on 31<sup>st</sup> July 2021.
- Attended Cluster College Meeting for MSc Part II on 4<sup>th</sup> August 2021-Dr.P.Shetty and Ms. L.Jeysus.
- Judged Dept logo making competition and Poster making competition organised by Chem Club- IM
- Conducted Orientation for MSc Part I on 7<sup>th</sup> August 2021 and Part -II on 18<sup>th</sup> August 2021. PS,LJ and AQ
- Students of TYBSc organised an online teachers day celebration on 6<sup>th</sup> September 2021. Attended by PS,RF,SM,TA,LJ, RK and AM.
- Meeting with IWSA members to discuss student internships on 17<sup>th</sup> August 2021-Attended by SM,RF,TA,LJ,RK,AQ.
- Meeting with Aseema incharge and teachers on 1<sup>st</sup> September 2021.-Attended by PS, SM, RF,TA,LJ,RK,AM,AQ.
- Meeting with Aseema incharge, teachers and Sophia college student volunteers on 7<sup>th</sup> September 2021. Attended by SM, RF,TA,LJ,RK,AM,AQ.
- Advisor for Academic Audit for the year 2019-20 and 2020-21-IM
- Dussehra Puja on 14<sup>th</sup> October 2021.
- Co-ordinated international online credit courses in collaboration with Indian Astrobiological Research Foundation (IARF) - RK
  - IPWI - 2021 - 1 credit course - 57 students completed the course
  - COP 25 ( 7 students) and RIO 26 (16 students) - 1 credit each course
  - International World Climate Quiz - 2021 ( approx 100 students have registered)

---



Dr. Prabha Shetty  
 Associate Professor  
 Head, Department of Chemistry  
 Sophia College (Autonomous)  
 Date: 30/11/2021