Evaluative Report of the Departments

Department of Geology

1. Name of the Department & its year of establishment:
   Department of Geology, Established in 1920.

2. Names of Programmes / Courses offered
   UG: B.Sc - Geology
   PG: M.Sc - Geology
   Ph.D - Geology
   Diploma – Gemmology

3. Interdisciplinary courses and departments involved
   • The department has invited the Head of the department of Physics - Dr. Shyamala Bodhane, as a domain related expert to help in syllabus formulation.
   • The applied component course in Gemmology has been upgraded as an interdisciplinary course so as to encourage participation from learners from other subject specializations.
   • Participation in the Interdisciplinary course on Environmental Studies where focus areas like Ground Water were dealt by departmental faculty.

4. Annual/ semester/choice based credit system
   Semester and Choice based credit system

5. Participation of the department in the courses offered by other departments
   a. Ancient Indian Culture (A.I.C) - visiting faculty for M.A – AIC.
   b. Department of Extra Mural Studies, University of Mumbai - Visiting faculty for certificate course in Geology.
   c. Academic Staff College, University of Mumbai, Resource Person for Orientation Courses and Refresher Courses (Since 1999).

6. Number of teaching posts sanctioned and filled (Professors/Associate Professors/Asst. Professors)

<table>
<thead>
<tr>
<th></th>
<th>Sanctioned</th>
<th>Filled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>02</td>
<td>02</td>
</tr>
<tr>
<td>Asst. Professors</td>
<td>04</td>
<td>05 (sanctioned in 2012)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>04</td>
</tr>
</tbody>
</table>
7. Faculty profile with name, qualification, designation, specialisation (D.Sc./D.Litt./Ph.D./M.Phil., etc.)

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of Years of Experience</th>
<th>No. of Ph.D. students guided in the last 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syed Jaffer Najaf</td>
<td>M.Sc, Ph.D</td>
<td>Associate Professor</td>
<td>Igneous Petrology</td>
<td>29 (Retd. 2008)</td>
<td>01</td>
</tr>
<tr>
<td>Bakhtawar S. Sethna</td>
<td>M.Sc, Ph.D</td>
<td>Associate Professor</td>
<td>Igneous Petrology</td>
<td>28 (deceased-March 2012)</td>
<td>-</td>
</tr>
<tr>
<td>Hrishikesh Samant</td>
<td>M.Sc, M.Tech, Ph.D</td>
<td>Associate Professor</td>
<td>Geomorphology</td>
<td>16</td>
<td>02 registered</td>
</tr>
<tr>
<td>Pravin Henriques</td>
<td>M.Sc, Ph.D</td>
<td>Assistant Professor</td>
<td>Oceanography</td>
<td>17</td>
<td>-</td>
</tr>
<tr>
<td>Bobby Mathew</td>
<td>M.Sc</td>
<td>Assistant Professor</td>
<td>Hydrogeology</td>
<td>09 (on FIP May 2012)</td>
<td>-</td>
</tr>
<tr>
<td>Goutam Bandyopadhyay</td>
<td>M.Sc, Ph.D</td>
<td>Assistant Professor</td>
<td>Economic Geology</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>Ashutosh Singh</td>
<td>M.Sc, Ph.D</td>
<td>Assistant Professor</td>
<td>Micropaleontology</td>
<td>01 (resigned 2010)</td>
<td>-</td>
</tr>
<tr>
<td>Hilal Faroo</td>
<td>M.Sc, Ph.D</td>
<td>Assistant Professor</td>
<td>Hydrochemistry</td>
<td>02 (resigned 2012)</td>
<td>-</td>
</tr>
<tr>
<td>Vikram Pratap Singh</td>
<td>M.Sc</td>
<td>Assistant Professor</td>
<td>Micropaleontology</td>
<td>06 months</td>
<td>-</td>
</tr>
<tr>
<td>Ashwin Pundalik</td>
<td>M.Sc</td>
<td>Assistant Professor</td>
<td>Sedimentology</td>
<td>2.5 years</td>
<td>-</td>
</tr>
<tr>
<td>Sadaf Fatima</td>
<td>M.Sc</td>
<td>Assistant Professor</td>
<td>Geochemistry</td>
<td>06 months</td>
<td>-</td>
</tr>
<tr>
<td>Farida Baxamusa</td>
<td>M.Sc</td>
<td>Temporary - CHB</td>
<td>Geology</td>
<td>1 year</td>
<td>-</td>
</tr>
<tr>
<td>Steffi Fernandes</td>
<td>M.Sc</td>
<td>Temporary - CHB</td>
<td>Geology</td>
<td>06 months</td>
<td>-</td>
</tr>
</tbody>
</table>

8. Percentage of classes taken by temporary faculty – programme-wise information
   B.Sc: 20%
   M.Sc: Nil

9. Programme-wise Student Teacher Ratio
   B.Sc : 30:1
   M.Sc: 06:1

10. Number of academic support staff (technical) and administrative staff: sanctioned and filled
    Laboratory Assistants: 01 (Sanctioned 01)
    Laboratory Attendants: 02 (Sanctioned 02)

11. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Mention names of funding agencies and grants received project-wise.
    Nil
12. Departmental projects funded by DST-FIST; DBT, ICSSR, etc.; total grants received
   DST-FIST (Fund for Improvement of S&T Infrastructure in Universities) 2012: Rs. 600,000.

13. Research facility / centre with
   • *state recognition* - Recognised Ph.D Lab with permanent recognition by University of Mumbai.

14. Publications:

**LIST OF PUBLICATIONS BY STAFF (2008 - 2012)**

**Ashwin Pundalik:**

**Ashutosh K. Singh (in Journal)**

Gwalani, L.G. and Sethna, B.S. (under review) Petrology of the basalts of Nagpur (Deccan Trap, India) and Antrim (Kalkarindji province, Australia). Mineralogy and Petrology (Springer Verlag Publication)

**Bobby Mathew:**

**Hilal Farooq** (Publications In Journals)

(In International Conferences)


Hrishikesh Samant (Publications in Journals)


(Articles in ISSN Magazines)

http://geospatialworld.net/index.php?option=com_content&view=article&id=23930

(Presented In International and National Conferences)


CONFERENCES AND WORKSHOPS (conducted)


Pravin Henriques


(In Conference proceedings)

1) Henriques P.J., 2012: Techniques for selecting jewellery pieces by understanding its intrinsic value: A Perspective Third National Seminar-cum-Workshop in “Gemmology” organized by the Dept. of Geology, Govt. Motilal Vigyan Mahavidyalaya, Bhopal (M.P) under the aegis of: South Asian Association Of Economic Geologist (SAAEG) and Indian Science Congress Association Bhopal Chapter. (Abstract)

2) Henriques P.J., 2012: Utilization of minerals and fossils as potential raw and processed gem material. Third National Seminar-cum-Workshop in
“Gemmology” organized by the Dept. of Geology, Govt. Motilal Vigyan Mahavidyalaya, Bhopal (M.P) under the aegis of: South Asian Association Of Economic Geologist (SAAEG) and Indian Science Congress Association Bhopal Chapter (Abstract)

Sadaf Fatima

Vikram Pratap Singh
(Publications In Journals)

(Chapter in Book)

In Press

15. Details of patents and income generated
Nil

16. Areas of consultancy/training and income generated

1. Petrographic Analysis and Rock testing:
   2006-07: Rs. 99,828/-
   2007-08: Rs. 1,03,735/-
   2008-09: Rs. 22,450/-
   2009-10: Rs. 14,300/-
   2010-11: Rs. 59,000/-
   2011-12: Rs. 1,16,150/-
   2012-till date: Rs. 46,250/-

2. Gemmology and Gem Testing:
   2006-07: Rs. 2,12,000/-
   2007-08: Rs. 1,85,625/-
   2008-09: Rs. 1,68,750/-
   2009-10: Rs. 61,250/-
   2010-11: -Nil-
   2011-12: Rs. 66,180/-
   2012-till date: Rs. 1,15,500/-

17. Faculty recharging strategies:
Staff are regularly participating in various co-curricular and competence enhancing activities both in college as well as outside. The college has also funded staff visits to Universities in India as well as Abroad, to understand and appreciate different teaching and evaluation methods.
a. Refresher Courses -
1st - 21st February 2012: Refresher Course on Environmental Sciences., Conducted by Academic Staff College, Kerala University, Trivandrum., (Mr. Bobby Mathew)
9th - 28th August 2010: Refresher Course in Earth Science conducted by Academic Staff College, University of Kolkata (Dr. Pravin Henriques).
25th February - 17th March 2009: Refresher course in Geology conducted by Nagpur University. (Dr. G. Bandyopadhyay).
17th December 2007 to 5th January 2008: Refresher Course in Environmental studies conducted by Academic Staff College, University of Mumbai (Dr. Pravin Henriques)
25th July - 14th August 2007: Refresher Course in Environmental Awareness., Conducted by Academic Staff College, University of Himachal Pradesh, Shimla. (Mr. Bobby Mathew)

b. Seminars/ Symposia and Conferences-
8th & 9th October 2010 : Faculty seminar on ‘Organisational Behaviour and Team Building’ at St. Xavier’s College, Human Resource Development Centre - Khandala. (All staff members).
12th – 14th October 2009: Bentley BeInspired: Infrastructure Best Practices Symposium, , Charlotte, North Carolina, USA. (Dr. Hrishikesh Samant)
26th & 27th February 2009: Staff seminar on Visioning for 2015 at St. Xavier’s College, Mumbai. (All staff)
15th December 2008:International colloquium ‘Higher Education and Society’ at St. Xavier's College, Mumbai - (Dr. Pravin Henriques)
10th & 11th October 2008: Staff seminar on Systems in autonomy-credits and syllabi at St. Xavier’s College, Mumbai. (All staff members)
21st to 22nd Dec 2007: Workshop on conservation of water heritage “Jalasanskrti”. St. Xavier's College. (All staff)
c. Workshops-
14th-17th September 2010: UN Office of Outer Space Affairs and European Space Agency Workshop on ‘Space Technology Applications for Socio-Economic Benefits’, , Istanbul, Turkey.(Attended ny Dr. Hrishikesh Samant)
4th September 2010: Workshop on Career Advancement Scheme. Organised by IQAC of Ramniranjan Jhunjunwala College, Ghatkopar. (Mr. Bobby Mathew)
27th to 28th Nov 2007: India Sustainability Symposium at St. Xavier’s College, Mumbai. (Dr. Pravin Henriques)
d. Training Courses:
4th June to 24th August 2012: 12 week course on Remote Sensing and GIS, NRSC, Hyderabad. (Bobby Mathew)
e. Visits to Universities-
   - Dr. Hrishikesh Samant visited University of Bath, UK and University of East London (7th May to 16th May 2011) as member of the College delegation to understand evaluation and assessment methods.

f. Total Quality Management-
   - 26th-28th September 2012, National Seminar on Academic Leadership for Heads of Departments, Organised by Centre for Education Beyond Curriculum, A TQMS initiative, Christ University, Bangalore. (Dr. Hrishikesh Samant)

18. Student projects
   Projects were done under the Honours Program: approximately 30% students who graduated with geology carried out guided research projects in topics not part of their regular curriculum.

19. Awards / recognitions received at the national and international level by
   - Faculty:
     **Dr. Hilal Faroq**
     - Awarded “Young Scientist Project” on problem of arsenic contamination in groundwater of West Bengal from Department of Science and Technology, Govt. of India (Budget 11.16 lakhs).
     - Awarded a fellowship of 1600 US$ by Ministry of Foreign Affairs of Denmark under International Development Cooperation (DANIDA) for attending an international conference.
     **Dr. Hrishikesh Samant**
     - Nominated Member of the National Task Force on Geospatial Education, MHRD, New Delhi. (December 2010 onwards)
     - Executive council member- Open Source Geospatial- India (OSGeo-India) 2010-2012.
     - Judge: DigitalGlobe 2010 : 8 Band Research Challenge (December 2010)
   - Students:
     **Best Paper Presentation Award**: Michelle Viswanathan, Two Day National
Conference on Geo-Informatics, 8th & 9th December 2006. Title "A Comparative Study of Vegetation Indices - Mumbai City".

20. Seminars/ Conferences/Workshops organized and the source of funding (national/international) with details of outstanding participants, if any.
Nil.

21. Student profile course-wise:

<table>
<thead>
<tr>
<th>Name of the Course (refer question no. 2)</th>
<th>Applications received</th>
<th>Selected Male</th>
<th>Female</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Sc Geology</td>
<td>51</td>
<td>08, 12</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>B.Sc. Geology</td>
<td>255</td>
<td>185</td>
<td></td>
<td>FY 80-85%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of the Course (refer question no. 2)</th>
<th>% of students from the College</th>
<th>% of students from the State</th>
<th>% of students from other States</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departmental data not available</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

22. Diversity of students

<table>
<thead>
<tr>
<th>Name of the Course (refer question no. 2)</th>
<th>% of students from the College</th>
<th>% of students from the State</th>
<th>% of students from other States</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departmental data not available</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

23. How many students have cleared Civil Services, Defense Services, NET, SLET, GATE and any other competitive examinations?
- 2007 - 2008: IIT JAM - 03
- 2008 - 2009: IIT JAM - 06
- 2009 - 2010: IIT JAM - 02
- 2010-2011: NET - 01, IIT JAM - 02
- 2011-2012: MPSC- Maharashtra Police 01, Civil Services - In Indian Revenue Service: 01, IIT JAM - 02
- 2012-2013: NET- 01, IIT JAM - 03

24. Student progression

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>UG to PG</td>
<td>50%</td>
</tr>
<tr>
<td>PG to M.Phil.</td>
<td>-</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>-</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctoral</td>
<td>-</td>
</tr>
<tr>
<td>Employed</td>
<td>75% campus</td>
</tr>
<tr>
<td>- Campus selection</td>
<td>25% other</td>
</tr>
<tr>
<td>- Other than campus recruitment</td>
<td></td>
</tr>
</tbody>
</table>
25. **Diversity of staff**

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same parent university</td>
<td>-</td>
</tr>
<tr>
<td>from other universities within the State</td>
<td>14%</td>
</tr>
<tr>
<td>from other universities from other States</td>
<td>86%</td>
</tr>
</tbody>
</table>

26. **Number of faculty who were awarded Ph.D., D.Sc. and D.Litt. during the assessment period.**

Nil.

27. **Present details about infrastructural facilities**
   a) Library: Centralised facility with special section for PG work.
   b) Internet facilities for staff and students: A Lease Line connection available to faculty. Centralised facility at Knowledge Centre available to students.
   c) Total number of class rooms: 02 + centralised facility
   d) Class rooms with ICT facility: 02 + 40 classrooms in common
   e) Students’ laboratories: 02
   f) Research laboratories: In Department and also Centralised

28. **Number of students of the department getting financial assistance from College.**

approximately 15 students per year out of 175 students (BSc + MSc)

29. **Was any need assessment exercise undertaken before the development of new program(s)? If so, give the methodology.**

Nil.

30. **Does the department obtain feedback from**
   A. **faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize it?** Yes, faculty members are on the Board of Studies to formulate the curriculum.
   B. **students on staff, curriculum as well as teaching-learning-evaluation and what is the response of the department to the same?** The Teaching Assessment Questionnaire scores are used for personal improvement and fine tuning teaching methods. Two students are on the Board of Studies.
   C. **alumni and employers on the programmes and what is the response of the department to the same?** Alumni are members on the departmental Board of Studies. This has helped us formulate industry-oriented course content.

31. **List the distinguished alumni of the department (maximum 10)**
   1. Late. Prof. R.N. Sukheswala, Member of IUGS on Streckeisen Committee on nomenclature of Igneous Rocks.
   2. Dr. Niloufer Adil Kazmi, Secretary, UGC.
   3. Mr. S.V. Rao, Director - Exploration, ONGC.
   4. Prof. Raja Sengupta, McGill University, Canada and visiting faculty at IIT Delhi.
5. Prof. Arundhuti Ghatak, IISER Bhopal.
6. Mr. Rajat Sood, Program Manager, Schlumberger, Huston, Texas.
7. Dr. Satish Umrikar, Hydrogeologist, Government of Maharashtra.
10. Prof. Adil Wadia, University of Akron, Wayne College, Il., USA.

32. Student enrichment programmes (special lectures / workshops / seminar) with external experts.
18th December 2010: Invited Lecture- Chert Formation as a Result of Chemical Weathering of Volcanic Ash., Lecture by Prof. Adil Wadia, University of Akron, Wayne College, Il., USA.

33. List the teaching methods adopted by the faculty for different programmes.
Faculty members role is more as a facilitator to the 'Learner'.
Extensive use of ICT in teaching. Faculty members have easy access to all devices as well as applications for effective communication, eg. Laptops, iPad, LCD & LED Projection systems, Micro-Image Projection and Capture system.
Geology being mainly field oriented, field visits to local areas of geological interest as wells as field visits for longer duration to practice and perfect field mapping skills of the learner are planned every year.

34. How does the department ensure that programme objectives are constantly met and learning outcomes monitored?
• Regular meetings with staff to obtain feedback about learners performance.
• Review of marks obtained under various course heads by students is monitored for internal quality improvement so as to achieve an overall above average performance by the learner.
• Learning objectives are monitored through 'continuous internal assessment' both for theoretical as well as practical courses.
35. Participation of students and faculty in extension activities.

Extension activities by faculty members is in form of delivering lectures at various colleges, schools and institutes for popularizing the subject has been done. School children visit the department as part of popularising the subject effort.

Geology First Year students have a mandatory 2 credit requirement of the Social Involvement Programme, with 60 hours in the field, serving the disadvantaged.

36. “beyond syllabus scholarly activities” of the department.

- The department published the first issue of an exclusive magazine by the students and staff 'TERRA' which was released on the 12th December 2012.
- Invited Lectures Delivered:
  Dr. H.P. Samant:
  4) The GEO-Spectrum Interface and its Applications to Civil Engineering p ISTE approved weeklong STTP, Rizvi College of Engineering, Resource Person - ‘Role of Geology in Civil Engineering’, 12th July 2011
  10) ECOSPEAK 09” – Environmental Festival of Guru Nanak Khalsa College, Mumbai, Keynote address ‘Monitoring the Coastal Regulation Zone Using Temporal Map and Satellite Data’ 30th January 2009


37. State whether the programme/ department is accredited/ graded by other agencies. Give details.

No.

38. Detail any five Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department:

Strengths:
1. Faculty with expertise in different disciplines and from different Universities.
2. Faculty with industry experience.
3. Consultancy projects done by faculty.
4. Faculty with consistent record of research paper publication, conference presentations (National, International).
5. Well placed Alumni who support our student placement and Training.

Weakness:
1. Excessive workload due to lack of sufficient faculty members.
2. Limitations on space for setting up laboratories for Post Graduate studies.
3. Lack of specialized equipment to cater to Post Graduate training and instructions in laboratory.
4. Dependency on government funding.

Opportunities:
1. The booming oil and natural resources sector needs man power resulting in huge demand for the subject by students.
2. As the subject is application oriented, Jobs for our graduates in allied sectors from banking to mapping and insurance to media.
3. Public as well as Government sector is recruiting geologists in large numbers.
4. Demand by environment protection agencies as geology is intrinsically related to earth system science.

Challenges:
1. High attrition rate among teaching staff due to good job opportunities in industry.

39. Future plans of the department.

Being the only post graduate department of geology in colleges affiliated to the University of Mumbai, the primary focus is to further strengthen our
Projects that will have a profound impact on the future course of the department are listed below: The implementation of these is dependent on funding which we plan to apply for from DST and UGC.

Below are the four projects that have been planned for the coming years.

1. To prepare a Spectral Database of Gemstones of India:
   The aim of this project is to prepare a spectral database of all Indian gemstones using the non-destructive Raman spectroscopic analysis method. The spectral database will develop our ability to identify and authenticate a gemstone.
   The present methods used in the department are mainly optical using polarising microscope. This method has its limitations, as today, a large number of gemstones undergo enhancements and are made to simulate other minerals. As being the premier department involved in teaching of Gemmology, this project will add to the knowledge base and help in capacity building.

2. Ground Water Table Characterization of select areas in Deccan Flood Basalts:
   Study of rock structure and water table fluctuations in select areas of Deccan Volcanic Province which have been majorly dissected by dykes will be attempted. The results are of great significance to all the government funded watershed management projects as the flow characteristics of ground water are presently unknown and field treatments done on watersheds does not give optimum returns.
   Water table investigation using electrical imaging will result in subsurface modelling of the geology and structure contributing to the development of an accurate ground water model which can be effectively used for sustainable extraction of groundwater.

3. To prepare a spectral database of the Secondary Minerals occurring (mainly Zeolites) in Deccan Flood Basalts:
   The aim of the project is to obtain unique fingerprint of the mineral using its Thermal properties. The present status of identification is mainly based on optical and chemical characteristics which are not perfectly suited for the identification of Zeolites. Differential Thermal Analysis and Gravimetry is the best technique to identify and characterise the zeolites which are available in the Deccan Flood Basalts.

4. Creation of a 3D model for subsurface geology of Mumbai city.
   Geological Mapping of Mumbai has been done by various researchers since the early 1960's. A large volume of subsurface data in form of borehole logs is available, though not as a single repository. The department through its 90 years of functioning, has extensive data and samples collected and documented. This project aims at preparing a subsurface geology 3D model which will have extensive usage for the infrastructure and underground rail projects which are envisaged in the near future.

Tentative Plans for New Courses: Keeping the demand from industry in mind, courses with specialisation in Petroleum geology and/or Geoinformatics.
**Department of Life Science & Biochemistry**

1. **Name of the Department & its year of establishment**
   DEPARTMENT OF LIFE SCIENCE & BIOCHEMISTRY
   Established in year: 1977

2. **Names of Programmes / Courses offered:**
   - BSc: with 6 units of Life Sciences at the TYBSc level
   - BSc: with 3 units of Life Sciences and 3 units of Biochemistry at the TYBSc level.
   - MSc: Papers - Applied Medical Sciences as a Specialization
     Research – Life Science; Biochemistry
   - PhD: Life Science
   - Diploma: Clinical Research

3. **Interdisciplinary courses and departments involved:**
   - Biochemistry - a core subject at the third year level is offered to all students of Life Sc., Microbiology, Zoology and Botany, who have taken Chemistry at the Second year level.
   - Cross Faculty Program on Nutrition and Reproductive Health (offered to the students of SYBA, SYBMS, SYBMM)
   - Applied Component course in “Environmental Science” is open to TYBSc students of Life Sc., Microbiology, Zoology, Botany and Chemistry.
   - Diploma in Clinical Research is open to graduates of any stream of biology
   - During the framing of syllabi for the Department, a faculty member from another department is invited, to give an interdisciplinary perspective.

4. **Annual/ semester/choice based credit system :**
   The department follows a choice –based credit system with two semesters to the year for a three –year graduation program.
   - **Intra departmental choices:** TYBSc core subject - students may choose to complete all their credits in Life Science or 50% in Life Science and 50% in Biochemistry.
   - **Inter departmental choices :** TYBSc Applied Component, SYBSc – All Life Sc students require Chemistry upto the SYBSC level, Cross Faculty Special Course, Course in Scientific Communication Skills

5. **Participation of the department in the courses offered by other departments**
   - **Students**
     - The students of SYBSc Life Science have to take a cross faculty course with the Arts departments.
     - In their TYBSc, the students can take their Applied Component Course with any of the Science departments as long as they satisfy the minimum criteria laid down by the department.
Faculty

- Several of the teaching staff acted as resource persons for varying periods during the years 2007-12 in the MSc Biotechnology course and the MSc Industrial Biotechnology and Enterprise course.
- Resource Person for orientation Courses conducted by the Academic Staff College, University of Mumbai (Since 2011).

6. Number of teaching posts sanctioned and filled (Professors/Associate Professors/Asst. Professors)

<table>
<thead>
<tr>
<th></th>
<th>Sanctioned</th>
<th>Filled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>3</td>
<td>03</td>
</tr>
<tr>
<td>Asst. Professors</td>
<td>6 (one sanctioned in 2012)</td>
<td>05</td>
</tr>
</tbody>
</table>

7. Faculty profile with name, qualification, designation, specialization (D.Sc./D.Litt./Ph.D./M.Phil., etc.)

<table>
<thead>
<tr>
<th>Sr. N</th>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of years of experience</th>
<th>No. of PhD students guided</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Dr.(Ms.) Sheela U. Donde</td>
<td>M.Sc., Ph.D</td>
<td>Associate Professor 1985-2012</td>
<td>Life Sciences</td>
<td>27 (retd. 2012)</td>
<td>01</td>
</tr>
<tr>
<td>2.</td>
<td>Dr. Samuel Namdas</td>
<td>MSc., Ph.D</td>
<td>Associate Professor 1979-2009</td>
<td>Life Sciences Biochemistry</td>
<td>30 (retd. 2009)</td>
<td>00</td>
</tr>
<tr>
<td>3.</td>
<td>Dr.(Ms.) Nandita Mangalore</td>
<td>M.Sc., M.Phil., Ph.D</td>
<td>Associate Professor</td>
<td>Life Sciences Biochemistry</td>
<td>22</td>
<td>00</td>
</tr>
<tr>
<td>4.</td>
<td>Dr.(Ms.) Radiya Pacha Gupta</td>
<td>M.Sc., Ph.D</td>
<td>Associate Professor</td>
<td>Life Sciences</td>
<td>19</td>
<td>00</td>
</tr>
<tr>
<td>5.</td>
<td>Dr.(Ms.) Seema Das</td>
<td>M.Sc., M.Phil., Ph.D</td>
<td>Associate Professor</td>
<td>Life Sciences</td>
<td>17</td>
<td>00</td>
</tr>
<tr>
<td>6.</td>
<td>Mr. Prashant Ratnaparkhi</td>
<td>M.Sc.</td>
<td>Assistant Professor</td>
<td>Life Sciences Biochemistry</td>
<td>13</td>
<td>00</td>
</tr>
<tr>
<td>7.</td>
<td>Dr.(Ms.) Priya Sundarrajran</td>
<td>M.Sc., Ph.D</td>
<td>Assistant Professor</td>
<td>Life Sciences</td>
<td>12</td>
<td>00</td>
</tr>
<tr>
<td>8.</td>
<td>Ms Sangeeta R. Shetty</td>
<td>M.Sc.</td>
<td>Assistant Professor</td>
<td>Life Sciences</td>
<td>10</td>
<td>00</td>
</tr>
<tr>
<td>9.</td>
<td>Ms. Sheetal Fernandes</td>
<td>M.Sc.</td>
<td>Assistant Professor</td>
<td>Life Sciences Biochemistry</td>
<td>04</td>
<td>00</td>
</tr>
<tr>
<td>10.</td>
<td>Ms. Girija Balan</td>
<td>M.Sc.</td>
<td>Assistant Professor</td>
<td>Life Sciences Biochemistry</td>
<td>02</td>
<td>00</td>
</tr>
</tbody>
</table>

8. Percentage of classes taken by temporary faculty – programme-wise information: About 10% of classes.

<table>
<thead>
<tr>
<th></th>
<th>FYBSc</th>
<th>SYBSc</th>
<th>TYBSc</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
<td>-</td>
<td>Radhika Tendulkar</td>
<td>Radhika Tendulkar</td>
</tr>
<tr>
<td>2011-12</td>
<td>-</td>
<td>------</td>
<td>------</td>
</tr>
</tbody>
</table>
2010-11  -  -------  -------  
2009-10  -  Meenu Gupta  Meenu Gupta  
2008-09  -  Sheetal Fernandes  Sheetal Fernandes  
Pooja Sagvekar  Pooja Sagvekar  
2007-08  -  -------  -------  
2006-07  -  Shabih Fatima  Shabih Fatima  

9. Programme-wise Student Teacher Ratio

<table>
<thead>
<tr>
<th>Programme</th>
<th>Student : Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>FYBSc</td>
<td>18:1</td>
</tr>
<tr>
<td>SYBSc</td>
<td>15:1</td>
</tr>
<tr>
<td>TYBSc Life Sciences 3U</td>
<td>20:1</td>
</tr>
<tr>
<td>TYBSc Life Sciences 6U</td>
<td>20:1</td>
</tr>
<tr>
<td>TYBSc Biochemistry 3U</td>
<td>20:1</td>
</tr>
<tr>
<td>TYBSc Environmental Science</td>
<td>20:1</td>
</tr>
<tr>
<td>MSc I Life Science</td>
<td>10:1 ( till 2012)</td>
</tr>
<tr>
<td></td>
<td>Combined teaching</td>
</tr>
</tbody>
</table>

10. Number of academic support staff (technical) and administrative staff: sanctioned and filled

<table>
<thead>
<tr>
<th></th>
<th>Sanctioned</th>
<th>Filled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Lab Assistant</td>
<td>02</td>
<td>02</td>
</tr>
<tr>
<td>Technical Lab Attendant</td>
<td>07</td>
<td>07</td>
</tr>
<tr>
<td>Administrative staff</td>
<td>00</td>
<td>00</td>
</tr>
</tbody>
</table>

11. Number of faculty with ongoing projects from
a) national  
b) international funding agencies and c) Total grants received. Mention names of funding agencies and grants received project-wise.

<table>
<thead>
<tr>
<th>Name of Investigator</th>
<th>Title of the project</th>
<th>Amount sanctioned</th>
<th>Duration</th>
<th>Funding agencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Sangeeta Shetty</td>
<td>Isolation of novel cellulases from extremophiles and other sources</td>
<td>1,50,000/-</td>
<td>2012-14</td>
<td>UGC-Minor Research Grant</td>
</tr>
</tbody>
</table>

12. Departmental projects funded by DST-FIST; DBT, ICSSR, etc.; total grants received
DST-FIST grant of Rs. 34.20 lakhs for Equipments and Infrastructure facility (2004-07) to Dept. of Biological Sciences (Life Science, Botany, Microbiology and Zoology)
<table>
<thead>
<tr>
<th>Name of Investigator</th>
<th>Title of the project</th>
<th>Amount sanctioned</th>
<th>Duration</th>
<th>Funding agencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. (Mrs.) Sheela U. Donde</td>
<td>Cloning of Cellulase genes from cellulolytic microorganisms and their transfer and expression in <em>Deinococcus radiodurans</em></td>
<td>13,80,000/-</td>
<td>3 Years (2006-09)</td>
<td>DAE – BRNS Research grant</td>
</tr>
<tr>
<td>Dr. (Ms.) Radiya Pacha-Gupta</td>
<td>Study of Haemagglutination Using Plant Lectins</td>
<td>25,000/-</td>
<td>1 Year (2006-07)</td>
<td>Mumbai University</td>
</tr>
<tr>
<td>Dr. (Mrs.) Sheela U. Donde</td>
<td>Cloning of Cellulase genes in <em>Deinococcus radiodurans</em></td>
<td>4,60, 350/-</td>
<td>3 Years (2009-12)</td>
<td>BRNS-DAE, Govt. Of India, Grant</td>
</tr>
<tr>
<td>Dr. (Ms.) Radiya Pacha-Gupta</td>
<td>Toxicological and Developmental studies on the guppy fish, <em>Poecilia reticulate.</em></td>
<td>30,000/-</td>
<td>2009-10</td>
<td>Mumbai University</td>
</tr>
<tr>
<td>Dr. (Ms.) Seema Das</td>
<td>Toxicological and development studies on the Zebra Fish, <em>Danio rerio</em></td>
<td>28,000/-</td>
<td>2008-09</td>
<td>Mumbai University</td>
</tr>
<tr>
<td>Mr. Prashant Ratnaparkhi</td>
<td>Isolation of dye-stuff metabolizing micro-organisms</td>
<td>25,000/-</td>
<td>2008-09</td>
<td>Mumbai University</td>
</tr>
<tr>
<td>Ms. Sheetal Fernandes</td>
<td>A preliminary survey of the effect of temperature and radiation stress on <em>Chironomus larvae</em></td>
<td>40,000/-</td>
<td>2011-12</td>
<td>Mumbai University</td>
</tr>
<tr>
<td>Ms. Sangeeta Shetty</td>
<td>Isolation of novel cellulases from extremophiles and other sources</td>
<td>1,50,000/-</td>
<td>2012-13</td>
<td>UGC-Minor Research Grant</td>
</tr>
</tbody>
</table>

13. Research facility / centre with
- state recognition
- national recognition
- international recognition

Department of Life Science & Biochemistry has Recognition for PhD in Life Sc from University of Mumbai.
Department of Life Science & Biochemistry has Recognition for MSc (by research) in Life Sc & in Biochemistry - from University of Mumbai
The Caius Laboratory and Central Instrumentation facility is used by all the Biological Sciences.

14. Publications:
* number of papers published in peer reviewed journals (national / international)
* Monographs
* Chapter(s) in Books
* Editing Books
* Books with ISBN numbers with details of publishers
* number listed in International Database (For e.g. Web of Science, Scopus, Humanities International Complete, Dare Database - International Social Sciences Directory, EBSCO host, etc.)
* Citation Index – range / average
* SNIP
* SJR
* Impact factor – range / average
* h-index

- Namdas S., Shetty S. et al; Establishment of Fibroblast Primary Cell Culture from Chick Embryos; *Environmental Technology – Biological Perspectives Issues & Challenges*; 9-10 Feb 2006, p105
- Pacha Gupta R., Donde S. et al; Chick Embryo as a Model System for Teratogenicity Studies; *Environmental Technology – Biological Perspectives Issues & Challenges*; 9-10 Feb 2006, p103
- Donde S.; Chick Embryo as a Model System for Teratogenicity Studies; Compartments: Cross Talks and Networks; 2-4 Feb 2007;
- Dr. Donde S. Development of a recombinant Deinococcus radiodurans strain expressing Bacillus pumilis endoglucanase enzyme; International Symposium on Current Trends in Life Sciences; 9 Mar 2012, p55
- Dr. Nandita Mangalore on ‘Development of a Research Culture at the Undergraduate level: Challenges & Strategies’ at the APQN International conference held from the 2nd to the 4th of March, 2011.
- Dr. Nandita Mangalore on “Quality Assurance and Best Practices at St. Xavier’s College, Mumbai” at a UGC sponsored conference at Fr. Agnel College, Goa on July 8, 2011.
- Dr. Radiya Pacha Gupta, Dr. Seema Das; *Study of the Teratogenic and Toxic Effects of Cadmium and Lithium using Chick as a Model System*; International Symposium on Current Trends in Life Sciences; 9 Mar 2012, p18
- Dr. Priya Sundarraj and Prof Sangeeta Shetty; *Toxicity Evaluation Using Human Peripheral Leukocytes as a Model System*; International Symposium on Current Trends in Life Sciences; 9 Mar 2012, p20
15. Details of patents and income generated
Nil

16. Areas of consultancy and income generated
a. Dr. Sheela Donde had undertaken a research project with Lignoil Technologies Pvt. Ltd. for the conversion of cellulosic bagasse into biofuel. Total value of the project was approximately 15 lakhs. Jul 2008-Mar 2009.

b. Dr. Priya Sundarrajan is currently a part of a consultative project on “DNA fingerprinting of Mahseer Fish from Walvan lake” with TATA power, Fund amount Rs. 9 lakhs. Dec 2011-April 2013.

17. Faculty recharging strategies
a) Orientation Courses:
   - Prof Sheetal Fernandes participated in a Teacher’s Orientation Programme from 14th Sep, 2011 – 12th Oct, 2011 organized by the UGC Academic Staff College, Mumbai.
   - Prof. Roseita D’Souza completed orientation course held at UGC Academic staff college, Kalina Campus between 4th Nov- 2nd Dec 2008.

b) Refresher Courses:
   - Prof Sangeeta Shetty participated in a UGC sponsored Refresher Course in Life Sciences from Sep 26th to Oct 15th, 2011 held in Khalsa College, Mumbai.
   - Dr. Priya Sundarrajan & Prof. Prashant Ratnaparkhi completed the UGC sponsored refresher course in Biological Sciences conducted at Mithibai College from 11th Oct – 30th Oct, 2011.
   - Dr. Radiya Pacha Gupta and Dr. Priya Sundarrajan completed a refresher course in’ Biotechnology’ held at Khalsa College, Mumbai between 1st – 22nd Oct, 2008.

c) Faculty Exchange Programs with Foreign Universities:
   - Dr. Priya Sunderrajan and Prof. Prashant Ratnaparkhi were deputed by St. Xavier’s College to the University of Bath, UK.
   - Dr. Seema Das was deputed by St. Xavier’s College to the University of Bath, UK. The purpose of the week long visit was ‘Course Improvement’ and ‘Quality Assurance’ of the collaborative MSc Industrial Biotechnology Enterprise course between St. Xavier’s College and the University of Bath.
   - Dr. Nandita Mangalore was deputed on behalf of the college to University of California, Berkeley, along with 17 students, for five weeks in May – June 2009, to audit various courses at Berkeley.
   - Dr. Radiya Pacha Gupta was deputed by the College to participate in the UKEIRI sponsored program for the MSc IBE course conducted jointly by the college and University of Bath, UK, from 27th Feb. to 5th March, 2010.

d) Seminars organized by St. Xavier’s College for Faculty:
• Dr. Sheela Donde, Dr. Nandita Mangalore, Dr. Radiya Pacha Gupta, Dr. Seema Das, Dr. Priya Sundarrajan, Mr. Prashant Ratnaparkhi, Ms Sangeeta Shetty, Ms. Girija Balan, Ms. Sheetal Fernandes attended all Wednesday staff seminars held in College during 2009-12.

• Dr. Nandita Mangalore, Dr. Radiya Pacha Gupta, Dr. Priya Sundarrajan, Prof. Prashant Ratnaparkhi, Ms. Girija Balan, Ms. Sheetal Fernandes attended the faculty seminar held in Khandala on 8th and 9th Oct 2011.

• Dr. Nandita Mangalore, Dr. Radiya Pacha Gupta, Dr. Seema Das, Dr. Priya Sundarrajan, Prof. Sangeeta Shetty, Ms. Girija Balan, Ms. Sheetal Fernandes attended the faculty seminar held in Khandala on 30th Sep- 1st Oct, 2012.

e) Conferences / Seminars/ Workshops attended

• Dr. Nandita Mangalore, Dr. Radiya Pacha Gupta, Mr. Prashant Ratnaparkhi, Ms. Sangeeta Shetty, Dr. Priya Sundrrajan, Dr. Seema Das, Ms. Girija Balan, Ms. Sheetal Fernandes participated in the “International Conference on Current Research in Biosciences” held on 21st, 22nd Dec. 2010 at St. Xavier’s College.

• Dr Sheela Donde, Dr Radiya Pacha Gupta, Dr. Seema Das, and Ms Sangeeta Shetty attended “Planet Earth” workshop at Jai Hind College 26th and 27th Nov 2010

• Dr. Radiya Pacha Gupta participated in the Systems Biology workshop, titled 'Introduction to systems biology and model building using open source pathway modelers' conducted by Cyborg Sapiens Bionformatica on 23 Jan 2011.

• Dr. Priya Sundarrajan and Prof. Prashant Ratnaparkhi attended a workshop on Clinical Proteomics- Technology and beyond held at ACTREC, Kharghar between 26th and 27th Nov 2010.

• Prof. Sheetal Fernandes participated in a two week school from 21st Feb to 6th March on ‘Systems and Cognitive Neurosciences’ conducted by DST-SERC at NBRC, Manesar.

• Ms. Girija Balan participated as a delegate in the National Conference on “Conservation of Biodiversity” organized by NCSC, held on 20-21 Nov 2010 at IISc, Bengaluru.

• Dr. Sheela Donde : invited to participate in 12th Asian Pacific Congress of Clinical Biochemistry October 3-7, 2010, Seoul, S. Korea on “Challenges in future Diagnostics”

• All the faculty members participated in the staff seminar on “Alternatives in continuous internal assessment” held on 20th Nov 2009 at St. Xavier’s College

• Dr. P. Sundarrajana, Profs. Sangeeta Shetty, Sheetal Fernandes and Meenu Gupta participated in the International Seminar on “ Human Rights in
Globalised World” held on 10th, 11th and 12th Dec, 2009 held at St. Xavier’s College, Mumbai in collaboration with Liverpool Hope University, UK. Dr. N. Mangalore, Dr. R. P. Gupta and Dr. Seema Das attended and helped in organizing the seminar.

- Dr. Sheela Donde, presented a poster entitled, “Cloning of cellulase genes from cellulolytic microorganisms and their transfer and expression in Deinococcus radiodurans”, presented at the 33rd All India Cell Biology Conference, 10th -13th Dec. 2009, at University of Hyderabad. The Conference was attended by her PhD student, Sachin Telang, who presented the poster.
- Dr. Radiya Pacha Gupta gave a presentation entitled “Study of Haemagglutination using plant lectins,” at the Faculty presentation in St. Xavier’s College, Mumbai, in Feb. 2010.
- Prof Sheetal Fernandes and Prof Sangeeta Shetty attended a conference on “Global Climate Change” organised by TERI at H.R. College on 22nd Jan 2010.
- Dr.R. P. Gupta, Dr. Seema Das, Dr. P . Sundarrajan and Prof .Sheetal Fernandes participated in the Science Academies’ Workshop “Planet G” organized by Jai Hind College on 24th and 25th Dec, 2009.
- Dr. P. Sundarrajan attended the DBT sponsored workshop on Bioinformatics held at ACTREC, Kharghar, Navi Mumbai on 21-22 Jan, 2010.
- Dr. R. P. Gupta attended the seminar “Frontiers in biology” organized by MSc – IBE, students of St. Xavier’s college, on 1st Feb, 2010 and participated in the “Gene necklace” workshop on 2nd Feb 2010.
- Dr. R.P. Gupta attended the one day workshop on “I – Talk” held at Jai Hind College on 17th Sep, 2009.
- Dr. S.U Donde, Dr. R.P. Gupta, Dr. S. Das, Prof. P.Ratnaparkhi, and Prof S. Shetty participated in the Staff Seminar organized by the college on “Student Evaluation” on the 9th and 10th of October 2007 . Dr. N. Mangalore was a part of organizing committee and Dr. S.B. Namdas and Dr. N. Mangalore were resource persons.
- Dr. N. Mangalore and Prof Prashant S. Ratnaparkhi were a part of the organizing committee for India Sustainability Symposium , 27th and 28th of November 2007.
- Dr. S. U. Donde, Dr. N. Mangalore, Dr. S. Das , Ms. Annie John and Ms. Shruti Sharma participated in Indian Academy of Science Program “ Recent Trends in Neuroscience” organized by the Department of Lifescience, Sophia College on 4th Jan, 2008.
- Dr. S. U. Donde participated in the XXXI All India Cell Biology Conference and Symposium on “ Stem Cells : Application and Perspectives” organized by the Indian Society of Cell Biology and CAS in Zoology, Banaras Hindu University between 14 – 16 Jan, 2008.
- Prof. Prashant Ratnaparkhi , Dr. Priya Sundarrajan and Prof . Roseita D’Souza participated in the syllabus orientation workshop in LifeSciences of the University of Mumbai conducted at Sophia College for Women, Mumbai on Saturday , 16th Sep , 2006.
• Dr. R. P. Gupta was invited to participate in the round table discussion on 'Whither Science Education in Colleges today?' organized by Observer Research Foundation on 11 July 2011.

• Dr. Radiya Pacha Gupta and Dr. Priya Sundarrajan attended the workshop on “Collaborative Undergraduate Research and Education (CURE)” on 29th, 30th and 1st July 2012 at the Homi Bhabha Centre for Science Education, TIFR.

• Dr. Radiya Pacha Gupta, Prof Prashant Ratnaparkhi, Dr. Priya Sundarrajan and Prof. Girija Balan attended the two day International Symposium on “MIF in Health and Disease” held at the Piramal Research Center, Mumbai.

• Dr. Radiya Pacha Gupta and Dr. Priya Sundarrajan attended the workshop on “DNA Barcoding” held on 6th and 7th Dec, 2012 at St. Xavier’s College, Ahmedabad.

• Dr. Radiya Pacha Gupta attended the conference organized by the Dept. of Biological Sciences, TIFR on the 50th year of the department.

f) Faculty as resource persons

➢ Dr. Sheela Donde served as resource person for DST-INSPIRE Internship programme (as Mentor):
  • at Subhash Chandra Bose College, Gwalior, Madhya Pradesh, on 25th Dec. 2011, gave a talk on “Neuroscience”
  • at Krishna College, Bijnor, Uttar Pradesh, on 28th Jan, 2012, gave a talk on “The Brain and Addiction”

➢ Dr. Nandita Mangalore has been a resource person
  • since 2011 for the orientation Courses conducted by the Academic Staff College, University of Mumbai
  • on teaching methods, for staff on probation, St. Xavier’s College, since June 2007
  • at the Professional Development Conference for Principals and administrators of colleges in Maharashtra, Feb 13-15, 2012, held in St. Xavier’s College on behalf of Academic Staff College, Mumbai.

➢ Dr. R.P.Gupta was the organizer for the “International Conference on Current Research in Biosciences” held on 21st, 22nd Dec. 2010 at St. Xavier’s College.

➢ Dr. R.P.Gupta was the resource person for the Wednesday afternoon Faculty seminar and gave a presentation on her research project titled “Study of Haemagglutination using plant lectins,” in Feb. 2010.

➢ Dr. Priya Sundarrajan was the organizer for a Teachers Training workshop on ‘Techniques in Animal Tissue Culture and Gas Chromatography’ by the Department of Life Sciences and Biochemistry and CIF from the 16th – 18th June, 2011

➢ Prof Sheetal Fernandes was resource person for the ATC & GC workshop held at the CIF, St. Xavier’s College. She demonstrated the Lyophilization technique.
Prof. Girija Balan was resource person for the workshop titled “Developing a Four Year Integrated B.Sc. and B.Ed. Programme”, organized by Central University of Tamil Nadu, Thiruvarur at the Center for Contemporary Studies (CCS), IISc, Bangalore on 27-28 Jan 2012.

Prof. Girija Balan conducted two-hour sessions on “How to make effective powerpoint presentations” for 40 students enrolled under the “Equal Opportunity Cell” of St. Xavier’s College.

18. Student projects
- percentage of students who have done in-house projects including inter-departmental
- percentage of students doing projects in collaboration with industries / institutes

MSc Projects:

In house projects:
2006-2009 - 40-50% of the students were a part of some project during their stint in the department. However, from 2009 onwards, 100% of students who do core courses in our department complete at least one research project.

1) MSc Students:
- At least 30% complete research projects every year.

2) TYBSc:
100% Students with a single major in Life Science have had to do projects as part of their curriculum for the last 4 Yrs
- In 2012-13, due to autonomy, a research project has been made compulsory for all final year Biochemistry students
  o (100% in-house)

3) SYBSc:
- 100% in-house project.
  Since 2009 the SYBSc students have been involved in at least one mini research group project (as part of a co-curricular program that is not a part of the syllabus, with a view to developing a research culture at the undergraduate level).
  o 20% also involved in additional projects such as with the Homi Bhaba research centre, through INSPIRE etc.

4) INSPIRE:
15% of FYBSc.
Nine of our First year students received the DST-INSPIRE-SHE scholarship (Scholarship for Higher Education) in 2011. All of these students enrolled for small summer research projects in the department.

5) Honours Projects:
- 30% -40% of students register for the Honour’s program, a co-curricular activity conducted by the college that is not mandatory for the award of the Bachelor’s degree. 
  *Annexure bears a list of the types of Honour’s programs held over the last 6 years*

Hospital Training in Collaboration with the department:
- 100% MSc II students spend 3 months in various departments of a reputed hospital, learning different techniques in pathology, serum biochemistry,
histology, blood banking, immunochemistry, hematology, etc. This is a part of their syllabus and reputed hospitals like Breach Candy, Jaslok, Hinduja, Tata Memorial Hospital, have been a part of this program for many years.

Summer training programs:
(About 40-50% of our undergraduate students get experience in one or more of the following ways:
- internships during summer vacations in an industry/hospital (about 30%), extension work etc.
- fellowships to do summer internships in reputed CSIR organizations like IISc, Bangalore; NCBS, Bangalore; TIFR, Mumbai; JNCAR, Bangalore, FMR, Mumbai; HBCSE, NMIMS, Haffkine Institute, UICT, NIRRH etc. (about 10%)
- summer courses and projects in foreign universities SYBSc students. (about 5-10%)

- Rutvij Kulkarni, Clinton Fernandes and Ashwin D’souza, were elected for the CUBE (Collaborative undergraduate Biology Education) programme at the Homi Bhabha Institute, Mankhurd from 5th to 17th Nov, 2012.
- Neelima Vaddadi, Dhwani Valia, Sarah Chordekar, Sukanya Charuchandra and Shreya Banerjee were selected for a summer course at Bath University, UK from 12th May to 4th of June, 2012. They will be having lecture series, practicals and project work in the fields on Molecular Biology, Developmental Biology, Cell Biology and Bioinformatics during that period at Bath University.
- Rinali Roy - did an internship at USV Biotech Company, Chembur from 23rd April to 15th May 2009.
- Ayesha Thanewale and Diksha Ahuja were selected for the NIUS programme at the Homi Bhabha Institute, Mankhurd from 21st – 27th April, 2009
- Nikita Susan Fiji – did a 10 day Biotechnology course at Hafikine Institute, Parel in may 2009.
- Dina Rasquinha and Alison D’ Souza did a training at BSES MG Hospital in the Pathology lab from 2nd April – 2nd May.
- Rucha Tillu –in may 2009 did a summer course in Microbiology from C.B. Patel Research Centre, Vile Parle( W).
- Shruti Agarwal – worked as an intern in Beckman Coulter India Pvt Ltd, Andheri (E) from 6th May – 1st June, 2009. She also underwent a training at Haffkine Institute on Animal Biotechnology from 22nd March - 3rd April 2009.
- Tejasvini Chalikonda was the recipient of IAS fellowship(2009-10)- a two months the summer project at Indian Institute of Science. She did a project on Marine Biodiversity conservation with BNHS.

TYBSc Students:
- Merlyn D’souza was selected for the CUBE (Collaborative undergraduate Biology Education) programme at the Homi Bhabha Institute, Mankhurd from 5th to 17th Nov, 2012
- Pallavi Gangavali, Akshat Shetty and Rebecca Ambrose did a Biotech Workshop at Nair hospital in May 2011.
• Our third year students Rohini Sekhar and Sonika Paul did internships in May 2011 at Jaslok Hospital in their Genetics and Biochemistry Departments respectively.
• Rohini Sekhar also did a one month internship in May 2011, at ‘Kokilaben Ambani Hospital’ in the 'Genetics & Molecular Biology Department'
• Akanksha Agarwal worked in Dr.Shubha Tole's lab at TIFR during the summer of 2011. She also participated in Ozone fest Quiz organized by the Institute of Sciences, Mumbai.
• Akanksha Agrawal and Racheal Fernandes did a Biotech Workshop in Hyderabad during May 2011.
• Many of our students did internships at various places like Vanashakti (Enviroment NGO), OIKOS- Ecological solutions company, ANET (Andaman & Nicobar Environmental Team) etc.
• Karishma Saran underwent a one month training at Bharat serum and vaccines in summer 2009.
• Shivani Khandwla was selected for a 15 day “ in plant training “ in Madras , on Stem cells at Life Cell International PVT. Ltd
• Gayatri Mehta,, Jessica D’ Lima and Shivani Khandwala and underwent a two week training with Mumbai Police.
• Hannah kurien underwent a one month training at Avesthagen Pvt Ltd in summer 2009..
• Candice D’Costa was selected for a one month training program in May 2009 at Cipla Pharmaceuticals.
• Fleur Lobo , Purva Rajhans and Preetha Chitre attended a two week (May 2009) International Business Course that was part of the Indian Leadership Exchange Program at New York University Stern School of Business, New York

MSc Students:
• MSc students Aadishree J. and Unnati Pendurkar worked on a project at Dr. Shobhona Sharma's lab at TIFR in the months of June and July, 2011. Their project topic was ‘To verify whether single nucleotide polymorphism in IL-10 gene influences the outcome of *falciparum* malarial infections in an endemic population in Orissa’.
• Ms. Juella Mendonca of MSc II did a summer training at Daiichi Sankyo India Pharma Pvt Ltd. Ms. Natasha Pereira did an internship in FMR in the summer of 2009.
• Msc part I student Sneha Shah has got the IAS – INSA –NASI summer fellowship – 2009 under Sandeep Saxena at NII, New
• MSc ,part II students were selected for summer training in various Laboratories as follows: Neha Phadke , Amrita Pai, Giovanni D’ Cunha, Prachi Mahindarkar and Lydia Tauro at BARC ; Sharon Sunny at RPG LifeSciences, Doel Sengupta at TIFR.

19. Awards / recognitions received at the national and international level by Faculty, Doctoral / post doctoral fellows, Students:

FACULTY:
Dr. Sheela Donde was

- Awarded the National AIACHE award ‘Reverend Fr. Theo Mathias Award for Innovative College Educator’s for the year 2010-11 given by the All India Association for Christian and Higher Education (AIACHE) in recognition of her ‘devotion to academic excellence, educational innovations, and commitment to high standards of professional ethics’.
- Presented with the St. Xavier’s college ‘Research Award’ for the year 2010-11.
- Placed on the Institutional Biosafety Committee of TIFR.
- Appointed by the Vice Chancellor, University of Mumbai, in the panel of experts(2009) in the establishment of a ‘DAE Centre for Excellence in Basic Sciences ’ at the University of Mumbai.
- A member of the Board of Studies, Univ. of Mumbai, and was appointed as a member of TYBSc syllabus committee in 2007-08.
- Appointed as a core committee member by the Univ. Of Mumbai for the UM–DAE Center for Excellence in Basic Sciences for the five year integrated MSc program in LifeSciences (2007-08)
- Dr. Nandita Mangalore was a member of the Board of studies for Biochemistry 2007-2010, the FY, SY, TYBSc syllabus committee and served as a member of the RRC during those years.

STUDENTS:

- Nine of our First year students: Ashwin D'souza, Clinton Fernandes, Danette Gomes, Upasana Potleth, Siddant Pusdekar, Zeba Khatri, Aditi Karmarkar, Deepika Karmarkar and Nalini Pinto received the DST-INSPIRE-SHE scholarship (Scholarship for Higher Education) in the year 2011-12
- MSc student Nandini Kasarpalkar presented a poster at the International Seminar on 'Current Trend in Lifesciences' organized by the Department of LifeScience, University of Mumbai, Kalina on 9th March, 2012.
- MSc students Mr. Shawn Braganza and Ms. Sai Barve presented a poster titled 'Study of the Teratogenic and Toxic Effects of Cadmium and Lithium using Chick as a Model System' at the UGC sponsored International Seminar on 'Current Trends in Life Sciences' organized by the Department of Life Science, University of Mumbai, Kalina on 9th March 2012.
- Second year students: Joshua Miranda and Mugdha Devalkar were selected for a fully paid scholarship (April- June 2012) for a semester at Oxford University, UK where they studied Human Ecology, Genetics and Neurosciences as part of their course work.
- Second year students: Neelima Vaddadi, Dhwani Valia, Sarah Chordekar, Sukanya Charuchandra and Shreya Banerjee were selected for a summer course at Bath University, UK from 12th May to 4th of June, 2012. They will be having lecture series, practicals and project work in the fields of Molecular Biology, Developmental Biology, Cell Biology and Bioinformatics during that period at Bath University.
- Varun Sreenivasan
  
  - Was selected as a Rajiv Gandhi Sciences Talent Research Fellow for the year 2007.
- Has received the Excellence scholarship for pursuing Masters in Life Sciences at the Ecole Polytechnique Federate Laussanne, The Swiss Federal Institute of Technology
- Diksha Ahuja and Rinali Roy got admission into Oxford University for a Masters program in Immunology and Global Climate Change Management respectively in 2010.
- Tanvi Shashikant from TYBSc (6 units) got admitted into a PhD program in Biology at Carnegie Melon University, USA

<table>
<thead>
<tr>
<th>YEAR</th>
<th>NAME OF STUDENT</th>
<th>UNIVERSITY AWARD IN</th>
<th>RANK</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-2007</td>
<td>Ms. Vanessa Machado</td>
<td>6U LIFESCIENCE</td>
<td>1st</td>
</tr>
<tr>
<td>2007-2008</td>
<td>Ms. Joyce Thompson</td>
<td>6U LIFESCIENCE</td>
<td>1st</td>
</tr>
<tr>
<td></td>
<td>Ms. Rajula Elango</td>
<td>6U LIFESCIENCE</td>
<td>2nd</td>
</tr>
<tr>
<td></td>
<td>Ms. Zenobia Pereira</td>
<td>6U LIFESCIENCE</td>
<td>3rd</td>
</tr>
<tr>
<td>2008-2009</td>
<td>Ms. Surashree Kulkarni</td>
<td>6U LIFESCIENCE</td>
<td>1st</td>
</tr>
<tr>
<td></td>
<td>Ms. Manisha Jalan</td>
<td>6U LIFESCIENCE</td>
<td>3rd</td>
</tr>
<tr>
<td></td>
<td>Ms. Kinjal Desai</td>
<td>6U LIFESCIENCE</td>
<td>3rd</td>
</tr>
<tr>
<td>2009-2010</td>
<td>Manali Khadilkar</td>
<td>6U LIFESCIENCE</td>
<td>1st</td>
</tr>
<tr>
<td></td>
<td>Shawn Braganza</td>
<td>6U LIFESCIENCE</td>
<td>2nd</td>
</tr>
<tr>
<td></td>
<td>Giselle Fernandes</td>
<td>6U LIFESCIENCE</td>
<td>3rd</td>
</tr>
<tr>
<td>2010-2011</td>
<td>Ms. Wendy D’souza</td>
<td>6U LIFESCIENCE</td>
<td>1st</td>
</tr>
<tr>
<td></td>
<td>Ms. Tanvi Shashikant</td>
<td>6U LIFESCIENCE</td>
<td>3rd</td>
</tr>
<tr>
<td>2011-2012</td>
<td>Ms. Andrea Fernandes</td>
<td>6U LIFESCIENCE</td>
<td>1st</td>
</tr>
<tr>
<td></td>
<td>Ms. Surbhi Sudhir</td>
<td>6U LIFESCIENCE</td>
<td>2nd</td>
</tr>
<tr>
<td></td>
<td>Ms. Mruduta Chaudhari</td>
<td>6U LIFESCIENCE</td>
<td>2nd</td>
</tr>
<tr>
<td></td>
<td>Ms. Ekta Verma</td>
<td>6U LIFESCIENCE</td>
<td>3rd</td>
</tr>
<tr>
<td></td>
<td>Mr. Shawn Braganza</td>
<td>MSc II</td>
<td>1st</td>
</tr>
</tbody>
</table>

- TYBSc student Ragini won a Gold at State level Dancing in the Samba Latin Category in 2010. She also won Bronze in the Two Dance Latin Category and a Certificate of Merit at the 4th AIDSF National Dancesport Championship held on 27th June, 2010.
- Sandhya Menon and Unnati Pendurkar, students of MSc II, won the 1st and 2nd prize in a quiz competition held at SNDT Women’s University and P.V. Polytechnique, as part of ‘CLINITEK-2011’ a seminar on HIV-AIDS, 21st-22nd Jan 2011.
• MSc Part I student Aadishree Zambekar and her group won first prize for their presentation on ‘The use of bio-fertilizers and bio-pesticides in agriculture’ in a competition held at ICT, Mumbai on the occasion of the celebrations of the global science day held on 28th Feb, 2011.

• The TYBSc students participated in a two day intercollegiate seminar “IRIS” organized by the Jai Hind College on 18th Sept, 2008. The following students won prizes in different categories.1. Taboo- Quiz competition - Hiral Sanghvi and Manitt Shah won the 1st and Siddheshwari Advani and Karan Hingorani – won the 2nd prize.
Poster making competition: Saniya Deshmukh and Sangeeta Banerji won the 1st and Surashree Kulkarni and Kinjal Desai won the 3rd prize.

20. Seminars/ Conferences/Workshops organized and the source of funding (national / international) with details of outstanding participants, if any.

• Workshop on ‘Techniques in Animal Tissue Culture and Gas Chromatography’ from the 16th – 18th June, 2011 for the faculty of the college. Funded by the College.

• The department organized an International Conference on ‘Current Research in the Biosciences’, on 21st & 22nd of Dec, 2011. Participants included students and teachers of biology from the various departments of the college and colleges in Mumbai. Speakers were largely illustrious alumni of the college. Funded by sponsors from the industry.

• The Department organized the Indian National Science Academies’ Lecture Workshop on "Frontiers in Life Sciences" on 18th and 19th of Jan, 2010. A total of 203 faculty and students both in-house and from various colleges and institutions from Mumbai, participated in the lecture workshop.

• A workshop on “Biohazards” was conducted by the Department for the Lab assistants and attendants of all biology departments on 4th Nov, 2009.

• Department of Life Science and Biochemistry and Caius Research Laboratory, St. Xavier’s College, organized a Lady Tata Memorial Trust sponsored Two Day Workshop for college teachers in “Techniques in Molecular Biology” on 2nd and 3rd March, 2009. Twenty five faculty members from various colleges from Mumbai participated in the workshop.

• A Mumbai University sponsored Teachers Syllabus Orientation Workshop was held for “TYBSc LifeSciences paper III” on Friday, 24th Oct, 2008. The workshop was attended by teachers from different colleges teaching LifeScience. The external expert was Mr. Giovanni D’Cunha (alumnus) from Marian Institute of Management, Goa was invited to conduct a lecture cum hands on practical session on Bioinformatics. This was followed by a hands-on session on all the new practical experiments.
The Department organized an Indian National Science Academies’ Lecture Workshop on "Current Trends and Challenges in Life Sciences" on 26th of November and 19th of Dec. 2008. A total of 186 faculty and students both in-house and from various colleges and institutions from Mumbai participated in the lecture workshop. Dr. S. U. Donde was the convener and all the staff members and MSc and TYBSc students helped in organizing the workshop.

A workshop on “Research techniques in Biology” was conducted between 22-24 Nov, 2007 in the C.I.F .MSc part I students of Biotechnology, Life Science and Botany participated in the workshop. Dr. S. U. Donde organized the workshop.

21. Student profile course-wise:

<table>
<thead>
<tr>
<th>Name of the Course (refer question no. 2)</th>
<th>Applications received</th>
<th>Selected Male</th>
<th>Selected Female</th>
<th>Pass percentage Male</th>
<th>Pass percentage Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSc: (FY,SY,TY)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011-'12</td>
<td>255</td>
<td>180</td>
<td></td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>2010-'11</td>
<td>245</td>
<td>170</td>
<td></td>
<td>90%</td>
<td></td>
</tr>
<tr>
<td>2009-'10</td>
<td>230</td>
<td>160</td>
<td></td>
<td>95-100%</td>
<td></td>
</tr>
<tr>
<td>2008-'09</td>
<td>220</td>
<td>160</td>
<td></td>
<td>90-100%</td>
<td></td>
</tr>
<tr>
<td>2007-'08</td>
<td>220</td>
<td>164</td>
<td></td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>MSc: Applied Medical Sciences as a Specialization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011-'12</td>
<td>-</td>
<td>1</td>
<td>9</td>
<td>95-100%</td>
<td>100%</td>
</tr>
<tr>
<td>2010-'11</td>
<td>-</td>
<td>2</td>
<td>8</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>2009-'10</td>
<td>-</td>
<td>1</td>
<td>9</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>2008-'09</td>
<td>-</td>
<td>1</td>
<td>9</td>
<td>90-100%</td>
<td></td>
</tr>
<tr>
<td>PhD Life Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diploma in “Clinical Research”</td>
<td>3</td>
<td>1</td>
<td></td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>2011-'12</td>
<td>33</td>
<td>5</td>
<td>13</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>2010-'11</td>
<td>67</td>
<td>0</td>
<td>23</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>2009-'10</td>
<td>101</td>
<td>4</td>
<td>17</td>
<td>100%</td>
<td>94%</td>
</tr>
<tr>
<td>2008-'09</td>
<td>83</td>
<td>7</td>
<td>17</td>
<td>86%</td>
<td>82%</td>
</tr>
<tr>
<td>2007-'08</td>
<td>20</td>
<td>7</td>
<td>7</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
### 22. Diversity of students

<table>
<thead>
<tr>
<th>Name of the Course (refer question no. 2)</th>
<th>% of students from the College</th>
<th>% of students from the State</th>
<th>% of students from other States</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSc:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012-'13</td>
<td>50</td>
<td>88</td>
<td>13</td>
<td>-</td>
</tr>
<tr>
<td>2011-'12</td>
<td>45</td>
<td>90</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>2010-'11</td>
<td>46</td>
<td>90</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>2009-'10</td>
<td>44</td>
<td>90</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>2008-'09</td>
<td>51</td>
<td>80</td>
<td>20</td>
<td>-</td>
</tr>
<tr>
<td>2007-'08</td>
<td>45</td>
<td>80</td>
<td>20</td>
<td>-</td>
</tr>
<tr>
<td>MSc: Applied Medical Sciences as a Specialization</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012-'13</td>
<td>57</td>
<td>88</td>
<td>12</td>
<td>-</td>
</tr>
<tr>
<td>2006-2007</td>
<td>Average 40-50%</td>
<td>Average 80%</td>
<td>Average 20%</td>
<td>-</td>
</tr>
<tr>
<td>PhD Life Science</td>
<td>nil</td>
<td>1</td>
<td>nil</td>
<td></td>
</tr>
<tr>
<td>Diploma in “Clinical Research”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012-'13</td>
<td>4</td>
<td>92</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>2011-'12</td>
<td>14</td>
<td>77</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>2010-'11</td>
<td>13</td>
<td>83</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>2009-'10</td>
<td>9</td>
<td>86</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>2008-'09</td>
<td>10</td>
<td>90</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2007-'08</td>
<td>28</td>
<td>72</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### 23. How many students have cleared Civil Services, Defense Services, NET, SET, GATE and any other competitive examinations?

2006-12 Approximately 20-25% of students who continued in India, successfully completed at least one of the afore-mentioned examinations.

- Shivani Khandwala was selected for a Master’s course in Immunology at Oxford.
- Karishma Saran, Fleur Lobo, Manali Khadilkar and Purva Rajhans were selected for Master’s programs in ‘Global Healthcare’, ‘Neurosciences’ and ‘Psychodynamic Development Neuroscience’ at University College London
- Jueeli Vaidya got into the Master’s program in “Cellular & Molecular Biotechnology” at Wageningen University, Netherlands
- Giselle Fernandes was selected for an Integrated PhD program at NCBS, Bangalore.
- Steffi Olickal joined TERI, Delhi for a Master’s program in Natural Resource Management.
- Praveen Prakhar got into the Biochemistry Master’s program at MSU, Baroda.
- Calvin Rodrigues joined the Master’s in Biotechnology program at the University of Mysore.
• Snigdha Mukerjee got selected the Master’s program in Zoology at the University of Pune
• Students Sai Barve, Shawn Braganza, Mark Coutinho, Sarita Desouza and Aadishree Jamkhedkar joined the Master’s course in ‘Applied Medical’ at St. Xavier’s College.
• Rashmi Coutinho and Nissim D’souza joined KEM Hospital, Mumbai for a Master’s course in Biochemistry.
• Ex-TYBSc Student Ms. Jaishree Tripathi secured 63rd rank, Mr. Rakesh Trivedi 160th rank, Ms. Siddheshwari Advani 196th, Ms. Saudamini Shevade – 370th and Ms Shreya Ayub – 397th rank in the All India Biotechnology Examination organized by JNU, New Delhi. (2008-09)
• MSc II student, Sneha Shah, has been offered PhD position at Oxford University, UK (2009-10)
• Ex-TYBSc Student Ms. Annwesa Dasgupta secured 66th rank and Mr. Figueirdo Dwight secured 260 ranks in the All India Biotechnology joint exam (2008-09)
• Placements of Ex-students
  Priyanka Apte – M S in Georgia State University
  Adrian Dias - MS Forensic Science – George Washington University
  Ethel Pereira - PhD in University of Tennessee
  Eureka Dias - MS in Bioscience – Keck Graduate University
  Shatabdi Dighe – working in Cytogenetics with Mr. Chaitanya Purandare in Poona.
  Neha Sood - working in Johnson & Johnson
  Dipen Desai - joined for PhD in FMR
  Aurelio- working with Nicolas Piramal

24. Student progression

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>UG to PG</td>
<td>Approximately 80%</td>
</tr>
<tr>
<td>PG to M.Phil.</td>
<td>------</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>Approximately 40-50%</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctoral</td>
<td>Approximately 40-50%</td>
</tr>
<tr>
<td>Employed</td>
<td></td>
</tr>
<tr>
<td>• Campus selection</td>
<td>------</td>
</tr>
<tr>
<td>• Other than campus recruitment</td>
<td>97- 98%</td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>2-3%</td>
</tr>
</tbody>
</table>

25. Diversity of staff

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same parent university</td>
</tr>
<tr>
<td>from other universities within the State</td>
</tr>
<tr>
<td>from other universities from other States</td>
</tr>
</tbody>
</table>
26. Number of faculty who were awarded Ph.D., D.Sc. and D.Litt. during the assessment period.

None

27. Present details about infrastructural facilities

a) Library:
   - The department has its own library, with a stock of about 100 books, which is open to the students and faculty.
   - The college has two libraries for student use - the Lending library and the Reference library, which are well stocked with books and journals.

b) Internet facilities for staff and student:
   - Common internet access in the Computer centre and in the reference library for students. A lease line connection in the department for use of faculty.

c) Total number of class rooms 41

d) Class rooms with ICT facility 41

e) Students’ laboratories 04 (Life Sc department)

f) Research laboratories 01 (Life Sc department) + 01 (common research lab for staff)

The classrooms are shared by all departments of the college. One of the labs is shared with the departments of Botany and Zoology

28. Number of students of the department getting financial assistance from College.

<table>
<thead>
<tr>
<th>Year</th>
<th>Class</th>
<th>Student number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
<td>FYBSc</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>SYBSc</td>
<td>01</td>
</tr>
<tr>
<td></td>
<td>TYBSc</td>
<td>03</td>
</tr>
<tr>
<td>2011-12</td>
<td>FYBSc</td>
<td>01</td>
</tr>
<tr>
<td></td>
<td>SYBSc</td>
<td>02</td>
</tr>
<tr>
<td></td>
<td>TYBSc</td>
<td>01</td>
</tr>
<tr>
<td>2010-11</td>
<td>FYBSc</td>
<td>02</td>
</tr>
<tr>
<td></td>
<td>SYBSc</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>TYBSc</td>
<td>01</td>
</tr>
<tr>
<td>2009-10</td>
<td>FYBSc</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>SYBSc</td>
<td>01</td>
</tr>
<tr>
<td></td>
<td>TYBSc</td>
<td>-</td>
</tr>
<tr>
<td>2008-09</td>
<td>FYBSc</td>
<td>01</td>
</tr>
<tr>
<td></td>
<td>SYBSc</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>TYBSc</td>
<td>-</td>
</tr>
</tbody>
</table>

29. Was any need assessment exercise undertaken before the development of new program(s)? If so, give the methodology.

No.

30. Does the department obtain feedback from

a. Faculty on curriculum as well as teaching-learning-evaluation? If yes,
how does the department utilize it?

Curriculum

- Oral feedback is taken from faculty teaching the courses, every year, and the suggestions are assessed during department meetings. Appropriate changes are then made in the curriculum and this is then subject to approval by the BOS.
- Two senior teachers are a part of the Board of Study and provide direct input at the board meetings.

Teaching-Learning-Evaluation

- The HOD conducts a formal “sit-in”, i.e. an unannounced observation of the lecture conducted for unconfirmed teachers by the HOD. A detailed report is prepared and discussed with the concerned staff member, before the report is submitted to the Vice principal.
- The results of the student performance at the end semester examination, of each course is analyzed and the report discussed with the teachers concerned by the Principal and the Vice Principal.

β. Students on staff, curriculum as well as teaching-learning-evaluation and what is the response of the department to the same?

Curriculum

- Informal Feedback from students regarding the course content is taken every year and valuable suggestions are put up for discussions during department meetings.
  Two students of the third year are invited to be a part of the syllabus committee of the Board of studies. This allows the board members to directly interact with and discuss issues with the stake holders in the process of education.

Teaching-learning-Evaluation

- Feedback regarding staff teaching the courses is taken as a whole by the TAQ committee of the college, the results are analyzed and a hard copy of the report followed by a discussion of the analysis is provided to the faculty by the principal/vice principal.
- The students of the department are divided into groups and each group is assigned a department mentor. At the mentor-mentee meetings, the faculty encourages students to give their opinion on various issues. The feedback and suggestions obtained are brought to the weekly department meeting and discussed by all members of the department. Pertinent suggestions/comments are referred to the BOS.

χ. Alumni and employers on the programmes and what is the response of the department to the same?

- The department duly incorporates suggestions put forward by the industrial experts and the academic experts in the BOS regarding course content and evaluation methods.
- In addition, due to the maintenance of good contact with the alumni, visiting alumni give scientific talks to students and in their interaction with staff, suggestions are made which are given due
consideration by the department and the BOS.

31. List the distinguished alumni of the department (maximum 10)
   a. Dr. Vidita Vaidya, TIFR Scientist
   b. Dr Shubha Tole, Bhatnagar awardee- TIFR Scientist
   c. Dr Sorab Dalal, ACTREC Scientist
   d. Dr Aditya Murty, Center for Neuroscience, IISc Bangalore
   e. Mr. Chaitainya Purandare, CEO, Cordlife Biotech
   f. Dr. Mohanish Deshmukh, from Neuroscience Center, Cell and Developmental Biology, UNC, Chapel Hill, USA,
   g. Dr. Niyati Parekh - faculty at NYU, USA
   h. Dr. Vishwas Sarangdhar, Consultant, Reliance LifeSciences, Tata group.
   i. Dr. Sandeep Saxena Founder & CEO, ACTON BIOTECH
   j. Dr Swati Patankar, Professor, IIT, School of Biosciences.

32. Give details of student enrichment programmes (special lectures / workshops / seminar) with external experts.
   1.) Industrial visits:
   • The TY 6U students were taken on an industrial visit to United Breweries Ltd, Taloja, Raigad Ltd, on 13th Nov, 2009. Staff members Dr. Radiya Pacha Gupta and Dr.P. Sundarrajan accompanied the students.
   • The SY and the TY students were taken for an educational tour to Koknan Krishi Vidyaapeet, Dapoli, Ratnagiri Dist on 19th and 20th Dec, 2007. The students visited Plant tissue culture lab, Animal husbandry farm, Energy resource and conservation plant and could also see Dolphins and fishing techniques. Staff members Dr. S.U Donde, Dr. S. B. Namdas, Dr. N. Mangalore, Dr. R.P. Gupta, Dr. S. Das, Prof. P. Ratnaparkhi, and Prof. Annie John accompanied the students.
   • The TY 6U students were taken to Sula Wines, Nashik for an educational field trip to see the process of Wine making on 11th Jan, 2008. Staff members Dr. S.B. Namdas, Dr. R.P. Gupta, Dr.P. Sundarrajan and Prof. Annie John accompanied the students.

   2).Invited speakers:
   • Ex student Dr. Brian D’Souza gave a talk on Neurogenetics in Dec 2012
   • Dr. Johnathan Bacon, ex dean, University of Sussex, UK, spoke on Development of the Nervous system and synaptic plasticity on 27th Nov 2012
   • World renowned scientist Dr. Eva Marder gave a talk on ‘Neural circuit variation in normal adults’ to our students and faculty on the 4th of Jan, 2012.
   • Famous gynecologist, Dr. Anjali Malpani gave a talk on ‘Assisted reproductive Technologies’ to our SYBA students as part of the cross faculty course in ‘Nutrition and Reproductive Health’
• Ex student Dr. Dhanisha Zaveri from Queensland University, Australia gave a talk on ‘Neurogenesis’ to our third year students on the 17th of Jan, 2012.

• Ex student Dr. Kaumudi Joshi from University of Chicago, gave a talk on ‘Evolution by Gene Duplication’ on 17th Jan, 2012 to the third year Life sciences students.

• Ex-student Dr. Niyati Parekh, gave a talk to our students on Public Health and Epidemiology in November, 2011.

• Ex student Fiona Desouza, a patent attorney at Law firm ‘Kaitan & Co’ gave a talk on ‘Environmental Sciences laws and policies’ to the third year students as part of their course in environmental sciences.

• Varun Sreenivasan (an alumnus of the Department, batch 2008) who finished his Masters from the Laboratory of Sensory Processing, Brain Mind Institute, Swiss Federal Institute of Technology gave a talk on “Topical Cortical Control of Movement” on 29th Aug, 2010.

• Dr Aditya Murty, an ex-student and currently faculty at the Center for Neuroscience, IISc Bangalore gave a talk on Vision on 11th Jan, 2011.

• Dr Deepak Modi from NIRRH, Mumbai gave a talk on ‘Microarrays’ on 29th Jan, 2011.

• Dr. Mohanish Deshmukh (an alumnus of the Department) from Neuroscience Center, Cell and Developmental Biology, UNC, Chapel Hill, USA, gave a talk to the TY and MSc students on “Death defying tricks of Neurons and Cancer cells” on 11th Dec, 2009.

• Dr. Ashwin Kotnis (ex – faculty of the department), PhD from ACTREC, Kharghar, presently doing Postdoc at Oxford University, gave a talk to the MSc students on “Factors predisposing multiple primary neoplasia” on 16th Jan, 2010.

2008-09

• Dr. Rohan Arthur from Nature Conservation Foundation, Mysore, was invited to speak to the TY students on “Conservation in a crowded country” on 10th July 2007.

• Dr. Arko Ghosh from Brain Research Institute, Univ. of Zurich, Switzerland was invited to deliver a lecture on “An empirical understanding of the brain” : Sensation and movement and Regeneration , sprouting and plasticity of the CNS on 26th July 2007.

• Dr. Shashi Menon was invited to give a lecture on GLP on 1st Aug 2007. The FY , SY and MSc students attended the talk.

• Mr. Brian D’Souza a former student who is currently pursuing his PhD in Texas Univ. USA, was invited to give a talk on “Pseudocopulation in Lizards” on 9th Jan, 2008.

• Dr. Shobhona Sharma from TIFR was invited to give a talk to the SYBSc students on 1st Sep 06. The title of the talk was “Recent advances in malarial research”.

• Mr. Sandip Saxena was invited to talk to the TY students in June 2006.
3). Participation in Conferences/ Workshops/ Seminars:

- The Department along with the CIF, organized a Workshop on ‘Techniques in Animal Tissue Culture and Gas chromatography’ from the 16th – 18th June, 2011, attended by three of the MSc students – Shawn Braganza, Sai Barve and Nandini K.
- The department organized an International Conference on ‘Current Research in the Biosciences’, on 21st & 22nd of Dec, 2011 which was attended by all undergraduate and MSc students of the Department.
- The MSc & TYBSc students attended the Indian National Science Academies’ Lecture Workshop on "Frontiers in Life Sciences" on 18th and 19th of Jan. 2010, organized by the Department.
- MSc part – I students – Brinda Poojary, Janice Dalgado, Erena James, Arunabha Bose, Sandhya Menon and Maithili Bhatia and Part II students Amita Kamble, Mita Sakhalkar Ashlesha Vaidya, Sneha Shah went for the open house held on 4th Dec 2009, at ACTREC, Kharghar.

4) Visit to institutions:
The Department ensures that students are taken every year to research institutions like ATREC & TIFR; during their Open House days, so that the students get an insight into their research projects and their facilities. In the academic year 2012-13 we increased the opportunities for students by adding a visit to NMIMS, an institute in Mumbai that has a centre for post graduate and doctoral work.

33. List the teaching methods adopted by the faculty for different programmes.
A combination of approaches are adopted by the faculty of the department in teaching the various courses.
a. Power point presentations and multi media
b. Animations, movies, role plays
c. Debates
d. Poems
e. Models
f. Chalk and talk with detailed explanation
g. Experimental demonstrations
h. Field trips & Industrial visits
i. Interactive learning through questions and discussions
j. Experiential learning through research projects, surveys, internships etc. is strongly promoted
k. Learning through case studies.

34. How does the department ensure that programme objectives are constantly met and learning outcomes monitored?
There are regular department meetings when the goals set for the year are discussed and the progress made reviewed. Changes are made based on
feedback and constant reality checks on the progress.

35. **Highlight the participation of students and faculty in extension activities.**
- Some Students of the SYBSc are currently engaged in a project “Jal Jyoti” which helps to provide light to slum dwellers at negligible cost.
- TYBSc student – Ms. Lisha Almeida – is the Campus Coordinator for the “Teach for India” initiative.
- Students of the Department are active volunteers for the outreach programs organized by the Social Service League & AICUF of St. Xavier’s College.
- Science Exhibitions have been held on numerous occasions and has seen an active participation by students of all the courses. This is an area we need to work on in the future

36. **Give details of “beyond syllabus scholarly activities” of the department.**

**Science Exhibition**—over the years several science exhibitions have been held by the department demonstrating experiments and sharing information in fields as diverse as Microbiology, Biotechnology, Physiology, Neurobiology, Developmental Biology, Biochemistry etc were demonstrated to school/college students. The endeavour was largely student-centric with regular monitoring by the faculty

**Department Publications**

- **Journal** - An annual journal “Lignum Vitae” featuring articles by students on research projects conducted in the department, scholarly articles etc was instituted for the first time in Dec 2012. The entire effort and responsibility for producing the journal was given to the students
- **Magazine** - In 2009-‘10 the magazine “INSIGHT” was released by the department
- **News letter:** For the first time the department brought out the news letter “The Active Site” in Nov, 2008. This activity was initiated by the TY and SY students to keep their colleagues in other departments informed about departmental activities

**Honor’s Programme:**
The Honour’s programme is a co-curricular activity conducted by the college that involves varied activities including research projects, lecture series, surveys, presentations, assignments, literature surveys, model making etc. The programme is only open to those with a consistently good academic record and extends over three years. Over the years we have observed about 30-40% of students enroll in the programme. Details of the program are provided in Annexure I

**INSPIRE- 2012**

Nine of our First year students: Ashwin D'souza, Clinton Fernandes, Danette Gomes, Upasana Potleth, Siddant Pusdekar, Zeba Khatri, Aditi Karmarkar, Deepika Karmarkar and Nalini Pinto received the DST-INSPIRE-SHE scholarship (Scholarship for Higher Education). All of these students enrolled for summer research projects under the guidance of professors Dr. Sheela Dponde, Dr. Radiya Pacha Gupta, Dr. Seema Das, Dr. Priya Sudarrajn and Ms. Sangeeta Shetty
37. State whether the programme/ department is accredited/ graded by other agencies. Give details.

NO

38. Detail any five Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department

Strengths:
   a. Diversity, enthusiasm and commitment of the staff (Staff members have different specializations, also coming from different universities they bring in a wide variety of experiences and pedagogical skills and approaches)
   b. Mixed age group of the staff
   c. New staff for at least a short period of time almost every year allows new ideas and approaches to be expressed and prevents stagnation
   d. Students with excellent academic calibre
   e. Freedom and encouragement to voice one’s opinion – both students and faculty

Weaknesses:
   a. Inadequate publications. Several research projects have been conducted, however, the work does not translate into writing and publishing a paper.
   b. Inadequate lab space for experimental projects and co-curricular work.
   c. Although we get students with excellent academic potential, in the recent past these numbers have decreased due to competition from professional courses and alternate establishments such as IISER etc.
   d. High staff turnover causes instability and a certain discontinuity in the teaching-learning process
   e. Inadequate experience in some key fields of biology

Opportunities:
   1. With autonomy, we have the freedom to design syllabi that are best suited to our student profile, and can keep pace with the emerging needs of the industry and the rapidly evolving nature of the discipline.
   2. Writing and presentation skills of the students is being developed by the scientific communication skills program
   3. Encouragement and promotion of internships of students over the summer.
   4. The ability to introduce a compulsory research project for all students.
   5. To evaluate students in varied and innovative ways, thus testing different skills of students and providing a better opportunity to those who are not adept at the written test method, to shine.

Challenges:
   1. To draw enthusiastic and capable students to the pure sciences, especially Life Science.
   2. To align our objectives and goals for the department to the reality of the student interest and ability.
   3. Increasing the department involvement in extension activities and
enthusing the students to willingly participate.
4. Initiation and sustenance of research work at the undergraduate, postgraduate and faculty level with the work done being published.
5. Stimulate younger staff to register for a PhD programme.

39. Future plans of the department.
   o Stabilizing the teaching program of the department by filling all the posts that are vacant.
   o Designing a challenging and relevant post graduate program and ensuring that the students selected are of a good academic caliber.
   o Promoting research activities in the department and increasing the number of staff registering for a PhD.
   o Publishing the research work done by staff and students.
   o Exploring alternate methods including increasing the use of moodle for assessment of students.
   o Conducng a workshop/ series of scientific talks by eminent scientists for students and staff of the college and other colleges on an annual basis
   o Promoting increased student participation in intercollegiate activities such as science festivals, quizzes etc.
   o Conducting a workshop for the non teaching staff on handling lab instruments.
   o Skill enhancement of the non teaching staff by sending them for workshops on instrument maintenance and lab safety.

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ANNEXURE 1 – HONOUR’S PROJECTS
(2011-12)
FYBSc
   i. Dr. Sheela Donde and Dr. R.P. Gupta conducted an Honor’s program on “Experimental Design” where students were taught concepts of research methodology and assessed for their ability to design an experiment in the lab.

SYBSc
   i. Dr. Radiya Pacha Gupta and Dr. Seema Das conducted an Honour’s project on ‘Caenorhabditis elegans as a model system for toxicological studies’ in 2011-12 in which 5 SYBSc students were enrolled.
   ii. Dr. Priya Sundarraj and Ms. Sangeeta Shetty conducted an Honour’s project on ‘Toxicity evaluation using human peripheral leukocytes as a model system’ in 2011-12 with 5 SYBSc students.

(2010-11)
TYBSc
   i. Dr Radiya Pacha Gupta guided a course on literature analysis

SYBSc
   i. Prof Prashanth Rantaparkhi conducted ‘Techniques in Biochemistry’
   ii. Prof .Sheetal Fernandes on ‘Behavioral and biochemical studies in response to stress in Chironomous larvae’
iii. Prof. Priya Sundarajan conducted a program on ‘The great discoveries in biology’.

FYBSc

i. Prof. Sangeeta Shetty guided a reading course on Virology.

Inter-departmental

i. A lecture series on ‘Neurosciences’ was conducted by Dr. Sheela Donde. Neuroscientists from TIFR were invited to deliver some talks. Students from Life Sciences, Mathematics, Microbiology, and Zoology participated in this program.

ii. Dr. Seema Das organized an inter-disciplinary Honour’s program on Environmental Science.

(2009-2010)

1. FYBSc

i. Dr. Sheela Donde - Reading Course in NEUROSCIENCES

ii. Dr. P. Sundarrajan, and Prof. Sheetal Fernandes - Teaching aids in Biology

iii. Dr. P. Sundarrajan, : Literature survey

iv. Prof. Sangeeta Shetty : Reading Course in Virology

2. SYBSc.

i. Dr. S.U. Donde, Dr. Pacha Gupta : Toxicological studies of heavy metals on growing plant root tips.

ii. Dr. S. Das : Developmental and toxicological studies in zebra fish.

iii. Dr. Seema Das: Inter disciplinary- Environmental Science Course.

iv. Dr. N. Mangalore and Prof. Sheetal Fernandes : Behavioral and biochemical studies in response to stress in Chironomous larva.

v. Dr. P. Sundarajan - Problems in bioinformatics.

3. TYBSc :

i. Dr. R. Pacha Gupta and Prof. P. Ratnaparkhi : Literature survey

2008-09

1. FYBSc:

i. Dr. Sheela Donde - Reading Course in NEUROSCIENCES

ii. Dr. Seema Das, Dr. P. Sundarrajan, and Prof. R. D’souza - Teaching aids in Biology

iii. Dr. P. Sundarrajan, Ms S. Shetty, Dr. S. Das, Prof. R. D’souza, : Literature survey

2. For SYBSc. :

i. Dr. Donde, Dr. Radiya Pacha Gupta, Dr. S. Das : Use of shell-less chick embryo as a model system for heavy metal toxicity

ii. Dr. Donde, Dr. R. Pacha Gupta, Dr. S. Das : Study of Oxidative Stress due to heavy metals in Guppy fish

iii. Mr. Ratnaparkhi : Immobilization of Neutral Amyloglycosidases on suitable substrata.

iv. Dr. Seema Das: Inter disciplinary- Environmental Science Course.

3. For TYBSc:

i. Dr. R.P. Gupta and Ms. Aditi Hazra - Lecture Series in Clinical research.
ii. Dr. R. Pacha Gupta: Literature survey

2007-08
FYBSc
i. Dr. N. Mangalore: Lecture series: “Science and Beyond”
ii. Dr. P. Sundararajan: Literature Survey

SYBSc
i. Dr. S. U. Donde, Dr. R. P. Gupta and Dr. S. Das: Research Project ‘Developmental and Toxicological studies using Guppy fish and Zebra fish as model systems.
ii. Prof. P. Ratnaparkhi: Research Project: Purification of neutral amyloglycosidases using column chromatography and identification of Dye-stuff metabolizing bacteria

TYBSc
i. Dr. Radiya Pacha Gupta and Dr. Seema Das: Literature survey

Department of Information Technology

1. Name of the Department & its year of establishment
   Department of Information Technology, 2007

2. Names of Programmes / Courses offered
   UG- BScIT

3. Interdisciplinary courses and departments involved
   - Cross Faculty Course: web designing offered to students of the Arts faculty and BMM & BMS.
   - A faculty member of another department is invited for syllabi formation sessions to bring in the interdisciplinary perspective.

4. Annual/ semester/choice based credit system
   Semester based credit system

5. Participation of the department in the courses offered by other departments
   - Cross Faculty Course: Web Designing
   - BMS: Introduction to Computers, Computer Applications in Business.

6. Number of teaching posts sanctioned and filled (Professors/Associate Professors/Asst. Professors)

<table>
<thead>
<tr>
<th></th>
<th>Sanctioned</th>
<th>Filled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Associate Professors</td>
<td>1</td>
<td>(Part time Head of the Dept.)</td>
</tr>
<tr>
<td>Asst. Professors</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>
7. Faculty profile with name, qualification, designation, specialisation (D.Sc./D.Litt./ Ph.D./M.Phil., etc.)

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialization</th>
<th>No. of Years of Experience</th>
<th>No. of Ph.D. students guided in the last 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Jyoti Singh</td>
<td>Ph. D</td>
<td>Associate Professor</td>
<td>Electronics</td>
<td>17</td>
<td>-</td>
</tr>
<tr>
<td>Subhash Kumar</td>
<td>M.C.A., M. Phil</td>
<td>Asst. Professor</td>
<td>Computer App. Computer Sc.</td>
<td>8</td>
<td>-</td>
</tr>
<tr>
<td>Roy Thomas</td>
<td>M.C.A, B.Ed.</td>
<td>Asst. Professor</td>
<td>Computer Applications</td>
<td>7</td>
<td>-</td>
</tr>
<tr>
<td>Shivarajini Gudibanda</td>
<td>M.Sc., B.Ed.</td>
<td>Asst. Professor</td>
<td>Computer Science</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>Lydia Fernandes</td>
<td>M.Sc.</td>
<td>Asst. Professor</td>
<td>Computer Science</td>
<td>4</td>
<td>-</td>
</tr>
</tbody>
</table>

8. Percentage of classes taken by temporary faculty – programme-wise information
   Even Semesters: 25%
   Odd Semesters: 30%
   Total: 27.5%

9. Programme-wise Student Teacher Ratio
   45:1 (+ visiting faculty)

10. Number of academic support staff (technical) and administrative staff: sanctioned and filled
    Administrative Staff: 1 clerk + 1 peon
    Academic Staff:
    • Academic: Co-ordinator
    • Technical: 2 Computer Engineers in the Lab.

11. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Mention names of funding agencies and grants received project-wise.
    Nil

12. Departmental projects funded by DST-FIST; DBT, ICSSR, etc.; total grants received
    Nil

13. Research facility / centre with
    • state recognition
    • national recognition
    • international recognition
    No.

14. Publications: Nil
* number of papers published in peer reviewed journals (national / international)
* Monographs
* Chapter(s) in Books
* Editing Books
* Books with ISBN numbers with details of publishers
* number listed in International Database (For e.g. Web of Science, Scopus, Humanities International Complete, Dare Database - International Social Sciences Directory, EBSCO host, etc.)
* Citation Index – range / average
* SNIP
* SJR
* Impact factor – range / average
* h-index

15. Details of patents and income generated
   Nil

16. Areas of consultancy and income generated
   Nil

17. Faculty recharging strategies
   • Workshops and seminars organized by College and other colleges affiliated to Mumbai University.
   • One member of the faculty travelled to the University of Bath, UK, sponsored by the College, for an international academic exposure.

18. Student projects
   • percentage of students who have done in-house projects including inter-departmental
     o 60%
   • percentage of students doing projects in collaboration with industries / institutes
     o 40%
     (Please refer Annexure I)

19. Awards / recognitions received at the national and international level by
   • Faculty
   • Doctoral / post doctoral fellows
   • Students :
     o Mr. Rahul Bohra, Brand Student Ambassador for "knowafest.com", National Level

20. Seminars/ Conferences/Workshops organized and the source of funding (national / international) with details of outstanding participants, if any.
   Nil
21. Student profile course-wise:

<table>
<thead>
<tr>
<th>Name of the Course (refer question no. 2)</th>
<th>Applications received</th>
<th>Selected Male</th>
<th>Female</th>
<th>Pass percentage Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSc - IT</td>
<td>700</td>
<td>180</td>
<td></td>
<td>FY: 80</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>SY: 85</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TY: 77</td>
<td></td>
</tr>
</tbody>
</table>

22. Diversity of students

<table>
<thead>
<tr>
<th>Name of the Course (refer question no. 2)</th>
<th>% of students from the College</th>
<th>% of students from the State</th>
<th>% of students from other States</th>
<th>% of students from other countries</th>
</tr>
</thead>
</table>

Departmental data not available

23. How many students have cleared Civil Services, Defense Services, NET, SLET, GATE and any other competitive examinations?
Pursuing

24. Student progression

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>UG to PG</td>
<td>20%</td>
</tr>
<tr>
<td>PG to M.Phil.</td>
<td>-</td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td>-</td>
</tr>
<tr>
<td>Ph.D. to Post-Doctoral</td>
<td>-</td>
</tr>
<tr>
<td>Employed</td>
<td></td>
</tr>
<tr>
<td>Campus selection</td>
<td>60%</td>
</tr>
<tr>
<td>Other than campus recruitment</td>
<td>10%</td>
</tr>
<tr>
<td>Entrepreneurs</td>
<td>10%</td>
</tr>
</tbody>
</table>

25. Diversity of staff

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same parent university</td>
</tr>
<tr>
<td>From other universities within the State</td>
</tr>
<tr>
<td>From other universities from other States</td>
</tr>
</tbody>
</table>

26. Number of faculty who were awarded Ph.D., D.Sc. and D.Litt. during the assessment period.
Nil

27. Present details about infrastructural facilities
a) Library:
- All the required text-books (multiple copies) and reference books in each and every branch of Information Technology are available to students and staff.
- Journals and magazines related to IT field, DVDs and internet facility is available.
b) Internet facilities for staff and students
   • Unique username and password for access via wifi, cyberlab throughout the college.
   • Internet Data card – dongle facility also available for the department staff.

c) Total number of class rooms
   Three + 40 Common classrooms of the college

d) Class rooms with ICT facility
   All

e) Students’ laboratories
   • Xavier’s Knowledge center is equipped with 3 computer labs having 30 desktops each, with projectors, printers and internet connections. One of the labs also has video conferencing facility.
   • Electronics laboratory for carrying out the hardware practicals.

f) Research laboratories - NA

28. Number of students of the department getting financial assistance from College.

   Students with Xavier’s Aid for Academics:
   The following students have been offered SBF facilities:

<table>
<thead>
<tr>
<th>Year</th>
<th>FY</th>
<th>SY</th>
<th>TY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-08</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2008-09</td>
<td>2</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>2009-10</td>
<td>2</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>2010-11</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2011-12</td>
<td>6</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>2012-13</td>
<td>1</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

29. Was any need assessment exercise undertaken before the development of new program(s)? If so, give the methodology.
   • Autonomous System developed by the college.
   • Syllabus is set by a Board of Studies (BOS) comprising of experts from the industry, head of the department of the university, faculty of other colleges, internal faculty of St. Xavier’s college and student representatives. This body deliberated on the present day needs and challenges of the IT industry and updated the syllabus accordingly. A review of the syllabus as well as the assessment process is undertaken by the BOS committee in each semester.

30. Does the department obtain feedback from
   a. faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize it?
   • Suggestions are provided by the Head after she judges the teaching through sit-ins in the lectures as well as informal feedback from students. There is a healthy interaction among faculty members and ideas about teaching methods and evaluation process are exchanged. The department follows Bloom’s Taxonomy for its evaluation process, especially the setting of the question papers for written exams.
b. students on staff, curriculum as well as teaching-learning-evaluation and what is the response of the department to the same?

  **STAFF:** A formal feedback is taken from the students through a Teacher’s Assessment Questionnaire (TAQ) and the results are discussed by the authorities with the concerned teachers.

  **CURRICULUM:** Student representatives are selected and are made part of the BOS, so they too may have a say on the curriculum being devised.

c. Alumni and employers on the programmes and what is the response of the department to the same?

  - Alumni give informal feedback and suggestions on new programs which are considered by the department while making future plans. For example students have been suggesting that we should introduce a Masters Course in IT at St. Xavier’s College and we are considering the possibility.

---

31. List the distinguished alumni of the department (maximum 10)

<table>
<thead>
<tr>
<th>Name of Student</th>
<th>Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Karen Mathias</td>
<td>2nd rank, Mumbai University 2010, Software Engineer at Google.</td>
</tr>
<tr>
<td>Ms. Linu Matthew</td>
<td>Software Engineer at Cap Gemini</td>
</tr>
<tr>
<td>Mr. Darel D’souza</td>
<td>Software Engineer at Google</td>
</tr>
<tr>
<td>Mr. Zinge Prasad</td>
<td>Software Engineer at Accenture, Bangalore</td>
</tr>
<tr>
<td>Ms. Ria Parekh</td>
<td>Management consultant at J. P. Morgan, U.S.A</td>
</tr>
<tr>
<td>Mr. Ameya Bhangle</td>
<td>Management consultant at Dalberg</td>
</tr>
<tr>
<td>Ms. Anouksha Narayanan</td>
<td>University Topper 2012, pursuing M. Sc.</td>
</tr>
<tr>
<td>Mr. Akshay Ranjan</td>
<td>Working for Teach India Program</td>
</tr>
<tr>
<td>Mr. Muffaddal Barwaniwala</td>
<td>Entrepreneur: Web Developer &amp; Digital Marketeer, Al Majd Hardware Trading LLC, Sharjah, UAE</td>
</tr>
</tbody>
</table>

32. Give details of student enrichment programmes (special lectures / workshops / seminar) with external experts.

  - Language lab:
    First year students lacking in language skills are sent to the language lab.
  - Industrial visits are organized every year for th BScIT students.
  - Tech Fest “XENITH” was initiated in the year 2011-12. In 2012-13, it was merged with the Science Fest “PARADIGM”.
  - Summer Internships for SYBSc.IT students.
  - Honours programme:

<table>
<thead>
<tr>
<th>Year</th>
<th>No. Of Students</th>
<th>No. Of Credits</th>
<th>Program</th>
<th>Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-08</td>
<td>32</td>
<td>2</td>
<td>Oracle Workshop</td>
<td>Prof. Roy Thomas</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>1</td>
<td>Computer Assembly</td>
<td>Prof. Yuvaraj Waugh</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>1</td>
<td>Communication devices</td>
<td>Prof. J.B. Mistry</td>
</tr>
<tr>
<td>2008-09</td>
<td>18</td>
<td>1</td>
<td>PL/SQL</td>
<td>Prof. Roy Thomas</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>2</td>
<td>VB.Net</td>
<td>Prof. Remya Panicker</td>
</tr>
</tbody>
</table>
### Teaching Methods

**33. List the teaching methods adopted by the faculty for different programmes.**

- ICT facilities are used by all professors.
- Use of the internet facility for lectures.
- CDs and DVDs on various topics related to the subject are used as teaching aid.
- Problem Solving, both at the individual level and in groups is encouraged.
- Students are encouraged to share their views on various topics related to the lecture.
- Assignments on varied array of topics, both a part of the syllabus as well as outside the syllabus are carried out under the guidance of the faculty.

### Programme Objectives Monitoring

**34. How does the department ensure that programme objectives are constantly met and learning outcomes monitored?**

TAQ, evaluation of Student Results

### Extension Activities

**35. Highlight the participation of students and faculty in extension activities.**

- Creation of Software on automation of Exam System for College (Please refer Annexure II)
- ECC Credits
- Honors
- Placement website [in progress]
- Events organized by College (Student festivals such as Paradigm, Xenith, Malhar)

### Beyond Syllabus Scholarly Activities

**36. Give details of “beyond syllabus scholarly activities” of the department.**

- Student Participation in events held on campus (Paradigm, Xenith IT, Malhar) as well as those organized by other colleges outside campus.

### Accreditation

**37. State whether the programme/department is accredited/graded by other agencies. Give details.**

Nil
38. Detail any five Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department

**Strengths:**
- Compatibility,
- Unity,
- Problem Solving ability,
- Updation of Syllabus through BOS,
- Knowledge skill upgradation by faculty,
- Sensitivity to students who are weak and need special attention
- Co-curricular activities

**Weaknesses:**
- We would like to give knowledge to our students of the latest software technology, but some of the software are too expensive and if some concession to educational institutes be given, it will benefit the students.

**Opportunities:**
- Contribution towards automation of several legacy systems in college.
- Participation in inter-disciplinary Research activities.
- If professors attend workshops or training on the latest trends in the industry, they will be able to share their knowledge with the students.

**Challenges:**
- There is a constant need to upgrade IT skills in order to keep abreast with the industry and deliver knowledge to the students.
- Constantly trying to bridge the gap between slow learners and above average students.

39. Future plans of the department.

**MSc. IT Research**

**Department of Mathematics**

1. **Name of the Department & its year of establishment** : Mathematics, 1892

2. **Names of Programmes / Courses offered:**
   - UG

3. **Interdisciplinary courses and departments involved** : “Mathematics Made Simple” – a course offered to Arts Students. Mathematics is also a part of B.Sc.(I.T). Mathematics students also have to take a 3 credit Cross Faculty Course from the Arts Faculty. A faculty member from another department is invited during course designing and syllabi formation, to give an interdisciplinary perspective.

4. **Annual/ semester/choice based credit system** : Semester system. Choice Based Credit system.

5. **Participation of the department in the courses offered by other**
**departments** : Mathematics courses for B.Sc.(I.T) and Cross Faculty Course.

6. **Number of teaching posts sanctioned and filled (Professors/Associate Professors/Asst. Professors)**

<table>
<thead>
<tr>
<th></th>
<th>Sanctioned</th>
<th>Filled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Asst. Professors</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

7. **Faculty profile with name, qualification, designation, specialisation (D.Sc./D.Litt./ Ph.D./M.Phil., etc.)**

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualification</th>
<th>Designation</th>
<th>Specialisation</th>
<th>No. of Years of Experience</th>
<th>No. of Ph.D. students guide in the last 4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Mangala. Gurjar</td>
<td>M.Sc., Ph.D</td>
<td>Associate professor</td>
<td>Pure Maths</td>
<td>34</td>
<td>0</td>
</tr>
<tr>
<td>Miss Meenal Kolkar</td>
<td>M.Sc., M.Phill.</td>
<td>Assistant professor</td>
<td>Pure Maths</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Mr. Ashok Bingi</td>
<td>M.Sc.</td>
<td>Assistant professor</td>
<td>Pure Maths</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Miss. Divya Revankar</td>
<td>M.Sc.</td>
<td>Assistant professor</td>
<td>Pure Maths</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

8. **Percentage of classes taken by temporary faculty – programme-wise information** : 0%

9. **Programme-wise Student Teacher Ratio** :
   - FYBSc : 45 : 1
   - SYBSc : 30 : 1
   - TYBSc : 6 : 1

10. **Number of academic support staff (technical) and administrative staff**: sanctioned and filled: One Part time technical staff member.

11. **Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Mention names of funding agencies and grants received project-wise.** Nil.

12. **Departmental projects funded by DST-FIST; DBT, ICSSR, etc.; total grants received**: Nil

13. **Research facility / centre with**
   - state recognition
   - national recognition
   - international recognition

14. **Publications**:
   * number of papers published in peer reviewed journals (national / international): 5
* Monographs
* Chapter(s) in Books: Ten chapters in books published by Mumbai University. : Chapter 12 – 17; Ashok Bingi in ‘Calculus & Analytic Geometry – FYBSc’ IDOL, University of Mumbai.
  Chapters 1, 2, 3, 6, 7, 8 ; Ashok Bingi in ‘Calculus & Analysis – SYBSc’ IDOL University of Mumbai.
  Chapter 4, 5, 12, 13, 14; Meenal Kolkar in ‘Calculus & Analysis – SYBSc’ IDOL University of Mumbai.
* Editing Books
* Books with ISBN numbers with details of publishers
* number listed in International Database (For e.g. Web of Science, Scopus, Humanities International Complete, Dare Database - International Social Sciences Directory, EBSCO host, etc.)
* Citation Index – range / average
* SNIP
* SJR
* Impact factor – range / average
* h-index

15. Details of patents and income generated: Nil

16. Areas of consultancy and income generated: Nil

17. Faculty recharging strategies: Participation in Orientation and refresher courses, Summer schools, conferences, conducting national level competitions, seminars etc.

18. Student projects : 5
  • percentage of students who have done in-house projects including inter-departmental: 1%
  • percentage of students doing projects in collaboration with industries / institutes: 0%

19. Awards / recognitions received at the national and international level by
  • Faculty
  • Doctoral / post doctoral fellows
  • Students

20. Seminars/ Conferences/Workshops organized and the source of funding (national / international) with details of outstanding participants, if any. Nil.

21. Student profile course-wise:

<table>
<thead>
<tr>
<th>Name of the Course (refer question no. 2)</th>
<th>Applications received</th>
<th>Selected Male</th>
<th>Selected Female</th>
<th>Pass percentage Male</th>
<th>Pass percentage Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.Sc – (Maths)</td>
<td>270</td>
<td>242</td>
<td></td>
<td>FY: 75</td>
<td></td>
</tr>
</tbody>
</table>
### Name of the Course (refer question no. 2) Applications received Selected Male Female Pass percentage Male Female

<table>
<thead>
<tr>
<th>Name of the Course (refer question no. 2)</th>
<th>Applications received</th>
<th>Selected</th>
<th>Male</th>
<th>Female</th>
<th>Pass percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>SY: 90</td>
<td>TY: 90</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 22. Diversity of students

<table>
<thead>
<tr>
<th>Name of the Course (refer question no. 2)</th>
<th>% of students from the College</th>
<th>% of students from the State</th>
<th>% of students from other States</th>
<th>% of students from other countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Departmental data not available</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 23. How many students have cleared Civil Services, Defense Services, NET, SLET, GATE and any other competitive examinations?
Data not available

#### 24. Student progression

<table>
<thead>
<tr>
<th>Student progression</th>
<th>Percentage against enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>UG to PG</td>
<td>75%</td>
</tr>
<tr>
<td>PG to M.Phil.</td>
<td></td>
</tr>
<tr>
<td>PG to Ph.D.</td>
<td></td>
</tr>
<tr>
<td>Ph.D. to Post-Doctoral</td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>25%</td>
</tr>
<tr>
<td>• Campus selection</td>
<td></td>
</tr>
<tr>
<td>• Other than campus recruitment</td>
<td></td>
</tr>
</tbody>
</table>

Entrepreneurs

#### 25. Diversity of staff

<table>
<thead>
<tr>
<th>Percentage of faculty who are graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>of the same parent university</td>
</tr>
<tr>
<td>from other universities within the State</td>
</tr>
<tr>
<td>from other universities from other States</td>
</tr>
</tbody>
</table>

#### 26. Number of faculty who were awarded Ph.D., D.Sc. and D.Litt. during the assessment period. Nil.

#### 27. Present details about infrastructural facilities
a) Library
   We have a small departmental library.

b) Internet facilities for staff and students: A Lease Line Connection available for faculty in the department

c) Total number of class rooms: use is made of 40 classrooms in common
d) Class rooms with ICT facility: all have ICT facilities
e) Students’ laboratories: Classrooms used.
f) Research laboratories

28. Number of students of the department getting financial assistance from College: 5%

29. Was any need assessment exercise undertaken before the development of new program(s)? If so, give the methodology. No.

30. Does the department obtain feedback from
   a. faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize it? The faculty members are on the Board of Studies and therefore can continuously modify the syllabi according to their experience in class and the need of relevance.
   b. students on staff, curriculum as well as teaching-learning-evaluation and what is the response of the department to the same? The College administers the TAQ to students, with feedback on each teacher. This is discussed with the Head of Department and Vice Principal for action if needed. There are 2 students on the Board of Studies.
   c. alumni and employers on the programmes and what is the response of the department to the same? Alumni give academic feedback and guest lectures which are appreciated by the department faculty and students.

31. List the distinguished alumni of the department (maximum 10)
   1. Prof. Madhav Nori, Professor of Mathematics at University of Chicago, US
   2. Prof. Dipendra Prasad, Dean, Professor of Mathematics at TIFR.
   3. Prof. Fakruddin Najmuddin, Professor of Mathematics, TIFR.
   4. Prof. Raja Sridharan, Professor of Mathematics, TIFR.
   5. Prof. Ravi Raghunathan, Professor of Mathematics, IIT, Mumbai.
   6. Prof. Gautam Iyer, Professor of Mathematics, CMU, US.
   7. Prof. Kirtikumar Joshi, Professor of Mathematics, Arizona, US.
   8. Prof Anish Ghosh, Reader of Mathematics, TIFR.
   9. Prof. Abhay Pethe, Head, Economics Department, Mumbai University.
   10. Mr. Nigel Andrade, Partner, Macentosh

32. Give details of student enrichment programmes (special lectures / workshops / seminar) with external experts.
   1. Honours programme which included lectures by Prof. Mangala V.M., Prof. Poornima Raina, Prof. Urmila Pillie, Prof. Padukone and projects and seminars at Khandala.
   2. Problem solving workshops by Prof. Anuradha Garge of CBS, Mumbai and M. Gurjar.
   3. A Mathematics magazine.
   4. A special lecture by Prof. Mahan Maharaj, Belur univ. of Kolkata on “Shapes and Surfaces”.
   5. Huzurbazar memorial lecture by Prof. Raghunathan, F.R.S. is planned to be held in Dec.2012.
6. The students give seminars in the college and also in competitions held in other colleges. In several seminar competitions and quiz competitions our students have won first prizes.

33. List the teaching methods adopted by the faculty for different programmes.
We have only UG programme. Along with usual teaching we sometimes give study material and problems before the lecture and encourage the students to solve problems or give presentations.

34. How does the department ensure that programme objectives are constantly met and learning outcomes monitored?
TAQ is conducted regularly. Also informal feedback is taken from the students. After every examination assessment is discussed with the students. Regular department meetings help to plan for the immediate future.

35. Highlight the participation of students and faculty in extension activities.
The First Year students take part in a 2 credit course under the SOCIAL INVOLVEMENT PROGRAMME

36. Give details of “beyond syllabus scholarly activities” of the department.
Coordinating and working as an examiner for national level Mathematical competitive examination funded by NBHM.
Attending and presenting papers in national level conferences.
Teaching M. Sc. Courses at institute of science and institute of distance education.
Writing some chapters in text books at UG and PG level for Mumbai University.
Contribute to the question bank at T.Y. B. Sc. Level.
Conducting one week summer school for all students of Mumbai.
Giving lectures in a refresher course.
Giving invited talks in different colleges.
To work as a judge at different intercollegiate competitions.
Conducting “Scientific communication skills” course.

37. State whether the programme/ department is accredited/ graded by other agencies. Give details.

38. Detail any five Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department
Strengths
1. Highly qualified faculty.
2. Good quality of 20% students because of high reputation.
3. Freedom to modify syllabus.
4. Location in south Mumbai. Students can attend TIFR lectures. Can go to TIFR regularly.
5. All the posts are filled up. Entire teaching job is done by full time teachers.

Weaknesses
1. B.Sc. course is taken up by many (50%) students not out of interest but lack of
choice.
2. Mathematics as a subject has less employability.
3. Mathematics is (perceived) difficult compared with other subjects.
4. Location. Many students and teachers spend lot of time and energy in travelling.

39. Future plans of the department.
   To have a separate BA programme in Mathematics.