

Parvatibai Chowgule College of Arts and Science (Autonomous)

4.1.1 Facilities for Teaching – Learning

New Infrastructure from 2015-16 onwards:

1. Post graduate department of Chemistry:

In 2009, the Institution initiated to introduce in Goa, the Postgraduate Programme Course in Analytical Chemistry for the need of Industry and Academics. In the academic year 2013-2014, the College got the affiliation for Postgraduate Department of Chemistry.

The Management of the Institution supported and promoted the facilities for the PG Analytical Chemistry course by purchasing very advanced and sophisticated Instruments, from Shimadzu make. The list of Instruments:

The Instrumentation Laboratory was inaugurated on 28th February, 2015. The main aim of the instrumentation laboratory was to give hands on training to the students on sophisticated instruments during the regular course and carry out their dissertation work within the campus.

After the inauguration of laboratory, two weeks Demonstration and training were given to PG faculty and students. Some UG Faculty participated in the programme.

Instrumentation Lab:

The instrumentation Laboratory consists of the following sophisticated instrumentation with PC connectivity:

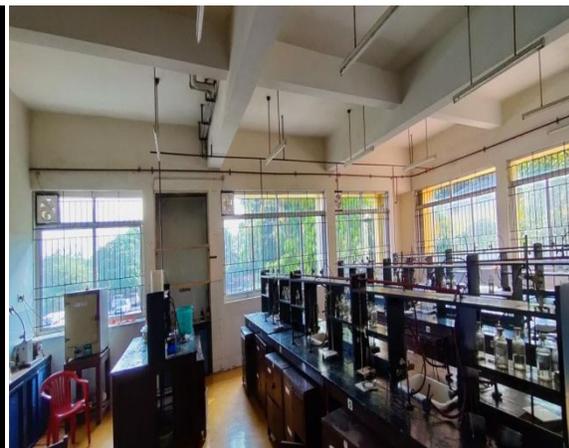
Double Beam UV Spectrophotometer, Atomic Absorption Spectrophotometer, Fourier Transform Infrared Spectrophotometer, Simultaneous DTA-TG Apparatus, Gas Chromatography, High Performance Liquid Chromatography.

The instrumentation laboratory facilities are made available exclusively to PG students of this College. The facilities are also extended to all the needy UG students of our college on payment of nominal fee per sample. Currently the facilities are extended to the neighboring colleges at UG and PG level and also professional colleges affiliated to Goa University on payment of nominal fee per sample.

MSc Analytical Chemistry Lab1



MSc Analytical Chemistry Lab2



2. Department of Psychology:

The Department of Psychology has a unique lab built in 2008. It has 09 cubicles and is well equipped with tests and equipment. The cubicles allow for conduct of experiments and administration of tests without distraction.

An addition is done to the tests and equipment as per requirement. From 2014 to 2017 the following tests and equipment have been purchased by the Department:

1. Rosenweig Picture Frustration Test for Adult Indian Adaptation
2. Mental Health Check list
3. Mental Health Inventory
4. Mirror Drawing Electronic with digital Counter and timer
5. Tachistoscope – Electrical with Slides
6. Muller Lyer Illusion Apparatus
7. Sodhi's Attitude Scale

Thus there are a total of 49 tests and 13 apparatus in the Department. These are used for practical and for projects by students and teachers. In 2017, the lab was covered on one side so as to prevent noise. The lab is now equipped with a projector. The lab is used for both the undergraduate as well as post graduate students.

3. Centre for Teaching-Learning (CTL):

The last decade has witnessed dramatic increase in technology incorporated into tertiary education. Students are heavily immersed in Web 2.0 technologies, with ICT (Information Communications Technology) playing an increasingly important role in student life providing countless options for learning. This has definitely impacted the teaching learning process in and outside the classrooms. Economic pressures and new models of education are bringing unprecedented competition to the traditional models of Higher Education among the faculty. CTL is the need the hour and will benefit all stakeholders.

The infrastructure for the centre has been partly funded by RUSA (Rashtriya Uchchar Shiksha Abhiyan) during the Academic Year 2017-18.

a) *ICT lab:*

Keeping in mind the objectives of the Centre, various training programmes are conducted in this Information and Communication Technology (ICT) Lab. The moveable furniture etc makes this a lab wherein besides computer training interactive group discussions can be held. This full environment supports collaborative teaching-learning process.

ICT Lab – view1



ICT Lab – view2



b) *AV room:*

E-Content and MOOC Development requires that there be a well-equipped studio that allows faculty and resource persons to records their lectures either synchronously or asynchronous. For which purpose a well-equipped AV room is a necessity. Also this room serves with multiple purpose besides the ones listed above. The AV room is used by various faculty to show clippings, animations, simulations, screen movies and documentaries etc that are subject related for educational purposes.

Audio-Visual Room



AV Room – front view



AV Room – Back view



c) Flipped Classroom:

A Flipped Classroom is an instructional strategy and a type of blended learning that reverses the traditional learning environment by delivering instructional content, often online, outside of the classroom. It moves activities, including those that may have traditionally been considered homework, into the classroom. The main goal in flipping a class is to cultivate deeper, richer learning experiences for students when the instructor is present to coach and guide them.

Emphasis is on higher-order thinking skills and application to complex problems. Common activities include: Collaborative learning, Case-based learning, Peer instruction and Problem sets. Therefore this room has been constructed so that the various Flipped Classroom strategies can be easily incorporated.

Flipped Classroom – Entrance



Flipped Classroom – Inside view



4. Central Research Lab:

Besides being an academic institution focusing on quality education, Parvatibai Chowgule College is also actively involved in research. The institute aims at creating a research culture by encouraging and enhancing research amongst faculty and students. Through the research work of our faculty and students we aim at addressing social issues, environmental issues and contribute to improvising human health in general.

Currently, we do not have a setup in the college which caters to the needs of researchers at molecular level. As research is the one of the key focus of this institute, we intend to establish the “Central Research Laboratory” (CRL), with the RUSA fund for science departments during the Academic Year 2017-18.

Aim: of this CRL will be to strengthen and upgrade available Science research facilities to advanced research & training to enable the students to take up challenging research projects.

Objective: RUSA funded CRL will help the students to get hands on exposure to the molecular research techniques, working of instruments and their application and increase their chances of employability in research and diagnostic centers. It will be a centre for enabling the students and faculty to carry out their practical and research which require usage of specialized equipments and laboratory setup.

Rationale: ‘Central research laboratory’ developed under RUSA will harbor instruments that are essential for researchers in multiple departments of science faculty. For carrying out practicals and research most of the science departments require similar instruments/ equipments. Establishment of CRL will enable us to avoid duplication of these equipments in multiple departments. The CRL will have lab set up and equipments for Cell culture, Microscopy works, DNA studies, Physicochemical parameter evaluations of soil and water, Microbiological testing, Geological studies involving Petrological microscope etc.

Central Research Lab (CRL)



This initiative of establishment of CRL funded by RUSA will therefore be serving a purpose of strengthening the students and faculty of science departments to improve critical thinking and ‘hands on’ experimental work, for meeting the needs of the autonomous curriculum and also enable students to have an access to use of sophisticated instruments and procedures of undertaking challenging research projects which will address social and environmental issues in the state.

5. Geo - Environmental Lab:

The department of Geography developed Geo-environmental Lab that aims to give scientific and technological skills to the students of BA and BSc. This Lab was developed from the funds received from RUSA, UGC Major Research project and DBT.

Geo-Environmental Lab – Entrance



Geo-Environmental Lab – Inside View



The Lab has facilities like Sonar, current meters, Pharmacies, Oven, Sievshaker, flame Photo meter, Multi parameter testing kits for Lab as well as field analyses. This enables to test Physical and Chemical Properties of soil and water. Students can conduct micro analysis of to understand a Geo-environmental linkage of natural landscape with the patterns of soil, water and vegetation. Besides this, students can use these skills in the field of environment, agricultural, watershed management, forestry etc. These facilities are also useful in Bathymetric Mapping of rivers, lakes and natural water bodies, locating the fishing potential sites and under water sediment analysis.

6. Plant Tissue Culture Lab (Botany):

Since thousands of years man has been dependent on plants for food, shelter, medicine. He has cultivated and selected the useful plants more suited to his needs. The latest advances in plant biotechnology provide potential to make improvements quickly than by conventional plant breeding. This can be done by isolating and culturing parts of the plants in vitro. Plant tissue culture has become popular among horticulturists, plant breeders and industrialists because of its varied practical applications. Plant tissue culture lab is established in Botany Department in the year 2018-19. Earlier it was in Biotechnology department.

Plant and Tissue Culture Lab



7. Plant Tissue Culture Lab (Biotechnology):

The Biotechnology laboratory is equipped to carry out Plant tissue culture work. The aseptic tasks of media preparation and plant tissue transfer are accomplished using the autoclaves and Laminar airflow unit. The Lab has a Plant Growth Chamber that allows careful manipulation of factors like light intensity, Temperature and humidity to sustain the growth of plant tissues. The main Biotechnology Lab is renovated to accommodate more students to conduct practical.

Renovated Biotechnology and Plant Tissue culture Lab



8. Biochemistry Lab:

The Biochemistry laboratory was established in the year 2017-18 and is a relatively new addition to the facilities at the Institution. The laboratory has nearly all the equipment required for the conduct of regular practical. Along with the basic laboratory equipments like a pH meter, refrigerator, microscopes, tabletop centrifuge, water-bath apparatus, a mixer blender; the department also has a UV visible spectrophotometer, a hot air oven, an incubator, and a laminar airflow that is used for the aseptic cultivation of microorganisms. The laboratory also contains all the instrumental setups for the conduct of experiments such as SDS-PAGE and Agarose gel electrophoresis.

Biochemistry Lab



Laminar Air Flow



The LAF of the department is currently housed in the Biotechnology laboratory as the design is better suited for the transfer of microorganisms. Both the laboratories (Biochemistry and Biotechnology) follow all protocols applicable to bio-safety level 1 laboratory settings. The laboratory can accommodate 20 students.

9. Student Support Service facility:

Student Support Services is a unique student centric facility at the College for improving student's skills and abilities and providing them opportunities to widen their academic scope. The Student Support Services encompasses smaller independent departments like Writing Centre, Career and Personal Counselling Centre, Centre for Portuguese Language and Culture and International Exchange Programmes.

The Services provided to students;

- i) A student to develop the academic writing skills and become more effective and confident writers through one to one interactions and group sessions.
- ii) Conduct customized workshops, seminars and courses on a range of language related topics like academic writing, avoiding plagiarism, referencing and resume writing.
- iii) Provide career guidance on higher education, courses and Universities.
- iv) Develop a career plan by helping to connect with the field of study to different occupational alternatives, create a post-graduate educational plan and explore job-opportunities.
- v) Counseling is provided on a one-on-one session with the students by the personal counselors to help resolve non-academic and personal issue through counseling as and when needed to tide over personal issues and concerns. In addition workshops and seminars are conducted for developing skills and acquainting students with new and upcoming careers and programs.

Student Support Service Center



Mini conference Hall



- vi) Potential to develop and learn a foreign language during free time at college with language teachers.
- vii) Opportunity provided for a student to enroll for short term and academic exchange programmes to enhance student's ability to assess and understand (in a relatively short time) the culture of new groups of people and get global experience. Academic exchange gives students

the benefit of transfer of credits, academic learning at the foreign University and global experience for upto two semesters.

In addition, the centre provides a conducive environment and learning resources that foster full integration into social and intellectual life of a student on campus.

10. Examination Cell:

Under Autonomy a separate Examination Cell was established in the AY 2018-19. The Cell houses with two counters to attend the student’s queries and difficulties related to exams. It has a cabin for Controller of Examination, cubicle for support staff, store room for question papers and answer sheets, a room for Xerox machines and two conference tables with ACs. Dedicated working staffs were appointed to cater to the smooth conduct of all UG & PG examinations.

Exam Cell – Outside View



Exam Cell – Inside View



OTHER FACILITIES

Library Building



Common Computer Labs



Printing Facility



Zoology Museum