



# Miranda House UNIVERSITY OF DELHI

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## Departmental Self-Appraisal Report

**Department: Physics**

**Academic Year:** 2022-23 (from 1 July 2022 to 30 June 2023)

### A. Steps taken by the Department to ensure rich inclusive teaching-learning environment

#### Academic

1. The UGCF (under NEP) was implemented in the academic year 2022-23. The Department held Orientation Programme and several counselling sessions to help students to understand the new structure and to make appropriate choices.
2. Counselling sessions were also held for the students of B.Sc. (Hons) Physics, Semester II to help them choose GEs in their Semester III and for the Semester IV students to choose DSEs in Semester V.
3. The Department has worked towards strengthening Mentor-mentee programme by making students aware of the programme. Teachers reached out to their mentees and made themselves available for any guidance that was asked for. Mentors held meetings with mentees. In some cases, one-to-one sessions were also held.
4. **Support Classes for C++ Lab:** In the course B.Sc. (Hons) Physics, Lab of the Discipline Specific Core: Mathematical Physics -I in the first semester involves programming in C++ and introduces the concept of Numerical Analysis. As opposed to LOCF, which offered this lab for 4 hours per week, UGCF structure offered it only for two hours.

In order to bridge the gap and to cater to the diverse needs of students, the Department offered two-week-long remedial/support classes for programming in C++ to students of Semester-1, B.Sc. (Hons) Physics. **With over 80 students admitted in the course, 31 students attended these classes.**

Details of the Support Classes are as follows:

**Duration:** Two weeks (19 Dec 2022 to 2 January 2023)

**Slots:**

Wednesdays, 11:45 am to 2:05 pm

Thursdays, 9:30 am to 11:45 am

Thursdays: 3: 00 pm to 4:30 pm

Fridays: 8:30 am to 10:30 am

Each student, who enrolled for these classes, was allotted two slot or more as per their time table constraints.

**Instructors:** Dr. Abha Dev Habib and Ms. Sumana Devi.

5. **Summer Workshop for Undergraduate Science Students**, Flavor of Research: Investigative Projects in Multidisciplinary Contexts held at the D. S. Kothari Centre for Research and Innovation in Science Education, Miranda House, University of Delhi was held from **9 June to 21 July 2022**. *The DSKC Summer Workshop is inclusive in nature as it is open to all interested students.*



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Fifteen faculty members of the Physics Department mentored 24 Summer Projects. Out of 90 undergraduate students who successfully worked on projects, 35 students were from other institutions.

6. A number of students successfully complete their undergraduate research projects withing the College and outside institutions of repute.
7. Many teachers participated in FDPs in the academic year 2022-2023. Most of these FDPs are regarding use of ICT in teaching-learning.
8. The Department was able to cater to the needs of over 400 students through its inclusive participative functioning through Departmental Committees. Teaching-learning and beyond classroom activities are organized through committees as shared responsibilities. Alum Relation Committee successfully strengthened the documentation of student progression.
9. Teachers went beyond the load of 14/16 hours/initial assigned teaching to cope with delays in appointment of guest and ad-hoc teachers against vacancies.
10. As a part of Workshop organized for Lab staff for all Science Departments, the Department conducted on 20 - 21 December 2022 a training session on the topic, *The Use of Electronic Equipment in Physics Lab* by *Dr. Mallika Verma*, our superannuated teacher.

### Co-curricular

11. Besides holding invited talks and seminars, the Physics Society further strengthened the following series:
  1. Journeys: Former students are invited to share their research work and journeys.
  2. PhyC $\xi$ : Series through which students present the UG research they may have successfully completed within and outside the institution. It helps students to learn about opportunities, how, where and when to apply for internships.
  3. "What Next?": Former students are invited to talk about their career choices and how they prepared well for them.

## B. Challenges

### Challenges faced

1. Last minute announcement of Internal Assessment guidelines for the UGCF created challenges.
2. Establishing Digital Empowerment (VAC) and to conceptualize evaluation in a meaningful manner was a great challenge. The Department could overcome this by handholding colleagues who taught it for the first time.
3. Staggered workload through the year 2022-23 created issues of overlap between examinations for a section of students with teaching period for others. At times, this created stress on infrastructure and on teachers.
4. Delay in appointments of guest/ad-hoc teachers resulted in difficulties for the Department in the organization of teaching-learning. Teachers had to take additional load to cope with these delays so that classes did not go unmet. Appointment of twelve permanent Assistant Professors in the Department in March 2023 brought relief.
5. Many Lab Staff retired and hiring of the staff took some time.



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6. In NEP curriculum the focus on computer programming has increased. The Department has over 50 laptops and computers. The Department requires a dedicated technical staff for maintaining these systems.

### **Challenges ahead - related to the UGCF 2022**

1. UGCF 2022 has introduced choices for students at every level. Such a programme can result in meaningful choices and hence, degrees only with lot of mentorships. Importance of focus on the Major, supported by study of allied subjects needs to be reiterated for academically sound and meaningful engagement and degrees.
2. Students giving up DSEs for GEs in the UGCF 2022 is a dangerous trend. A fear is that students' choices may not be guided by academic reasons. Counselling through mentor-mentee programme and through special sessions is extremely important.
3. Common fixed slots for GEs, VACs and SECs have reduced time available for students for Departmental activities or extra/remedial classes and for interaction amongst themselves and with seniors.
4. Delay in finalizing optional papers may result in reduced time for teaching. New challenges include drawing schedules for counselling sessions and getting students to fill forms strictly as per schedule.

### **C. Future Plans**

1. The Department will explore ways of introducing experiential learning through SEC introduced under the UGCF 2022.
2. The Department will develop peer mentor-mentee programme as an additional support system. In this programme, student volunteers from the 2<sup>nd</sup> and 3<sup>rd</sup> year will be assigned 1<sup>st</sup> year students.
3. With a large number of new lab-staff, the Department will try to organize more workshops for them.
4. The Department will work towards organizing a Physics Conclave aiming at introducing research frontiers to students.

**Dr. Abha Dev Habib**  
**Teacher-in-Charge**