

Evaluative Report of School of Basic Science and Research (SBSR)

- 1. Name of the Department :** Physics
- 2. Year of establishment:** 2013
- 3. Is the Department part of a School/Faculty of the university?:**
YES, SBSR
- 4. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.):**
B.Sc.(hons.), M.Sc., M.Sc. (Integrated), Ph.D.
- 5. Interdisciplinary programmes and departments involved:**
B.Sc.-L.L.B.
- 6. Courses in collaboration with other universities, industries, foreign institutions, etc.:**
NIL
- 7. Details of programmes discontinued, if any, with reasons:**
No
- 8. Examination System: Annual/Semester/Trimester/Choice Based Credit System:**
SEMESTER
- 9. Participation of the department in the courses offered by other departments:**
B.Sc.(hons.)(Chemistry and Mathematics), B.Tech., M.Tech.
- 10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)**

	Sanctioned	Filled	Actual(includingCAS&MPS)
Professor			2
Associate Professors			3
Asst.			4
Others			-

11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

Name	Qualification	Designation	Specialization	No. of Years of Experience	No. of Ph.D./ M.Phil. students guided for the last 4 years
Prof. B. Bhattacharya	M.Sc., Ph.D.	Professor	Electronics solid state Ionics	20 years	Ph.D. – M.Tech. - 8
Prof. R.C. Singh	M.Sc., Ph.D.	Professor	Electronics Liquid Crystals	24 years	Ph.D. – 2
Dr. Munendra Singh	NET, M.Phil., Ph.D.	Associate Professor	Space and Particle Physics	13 years of teaching and research	None
Dr. P.K. Singh	M.Sc., Ph.D.	Associate Professor	Electronics	14 years	Ph.D. – 3
Dr. R.K. Thakur	Dr.rer.nat. (PhD) in Experimental Nano	Associate Professor	Low Temperature Physics, Materials	16 years of teaching and research (in	3 Ph.D., and 5 M.S./M. Phil.

	Condensed Matter Physics: Low Temperature/ UHV Surfaces Physics. Konstanz University (An elite German University, ranked #1 in Physics), Germany		Engineering , UHV Surfaces Physics, Accelerator Technology (RF testing of superconducting cavities), Nano Science and Nano Technology	German universities , Hong Kong Uni. Of Science and technology, Hong Kong, and Italian University: INFN Legnaro and Padova University)	students (co-supervised)
Dr. Meenal Gupta	D.Phil.	Assistant Professor	Material Science	8 years after D.Phil	None
Ms. Sandhya Gupta	M.Tech., (pursuing Ph.D.)	Assistant Professor	Material Science	13 years	None
Mr. MohitS ahni	M.Sc.+ NET (pursuing PhD)	Assistant Professor	Experimental solid state physics	10 years	None
Ms. Divya Singh	M.Sc. (pursuing PhD)	Assistant Professor	Material Science	9 years	None

12. List of senior Visiting Fellows, adjunct faculty, emeritus professors:

NONE

13. Percentage of classes taken by temporary faculty– programme – wise information

Nil

14. Programme –wise Student Teacher Ratio:

4:1

15. **Number of academic support staff (technical) and administrative staff : sanctioned, filled and actual:**
01 lab support staff.
16. **Research thrust areas as recognized by major funding agencies:**
DSSC
17. **Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise:**

02
18. **Inter-institutional collaborative projects and associated grants received**

a) **National collaboration : 01** b) **International collaboration**
NIL
19. **Departmental projects funded by DST-FIST; UGC-SAP / CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received:**
NIL
20. **Research facility/centre with:**
- **State recognition**
 - **National recognition**
 - **International recognition**
- NIL
21. **Special research laboratories sponsored by/ created by industry or corporate bodies:**
NIL
22. **Publications:**
- * **Number of papers published in peer reviewed journals (national/ international):**

145

- * **Monographs:** NIL
- * **Chapters in Books:** 12 technical reports
- * **Edited Books:** 02
- * **Books with ISBN with details of publishers:** NIL
- * **Number listed in International Database (For e.g. Web of Science, Scopus, Humanities International Complete, Dare Database- International Social Sciences Directory, EBSCO host, etc.):** 55
- * **Citation Index–range /average:** 70
- * **SNIP:** NIL
- * **SJR:** NIL
- * **Impact Factor–range/average:** 53.26
- * **h-index:** 14

23. Details of patents and income generated:

2+income nil

24. Areas of consultancy and income generated:

Surface treatments for Industrial applications (consultancy work has been done for Italian Gun metal/ Chemical industry)

25. Faculty selected nationally/internationally to visit other laboratories/institutions /industries in India and abroad:

Faculty members have visited CERN, ETH Switzerland, DESY Hamburg and HZB Berlin in Germany, Cavandish lab, UK, Thomas Jefferson National Accelerator Facility, Jefferson Avenue Newport

News, Cornell in USA, The European Synchrotron Radiation Facility (ESRF) Grenoble, France, IIT-BHU India. ICTP Italy.

26. Faculty serving in

National committees b) International committees c) Editorial Boards d) any other (please specify):

Annexure SBSR-1

27. Faculty recharging strategies (UGC, ASC, Refresher/ orientation programs, workshops, training programs and similar programs):

Department organizes biweekly special lectures; NWPS-2010

28. Student projects: NIL

- **Percentage of students who have done in-house projects including inter-departmental projects: NIL**
- **Percentage of students doing projects in collaboration with other universities /industry/institute: NIL**

29. Awards/recognitions received at the national and international level by faculty

Annexure SBSR-2

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

Annexure SBSR-3

31. Code of ethics for research followed by the departments:

In addition to excellence in Science, a strict adherence to high ethical standards is a necessity. The core ethical policy of DAE is to establish a tradition with highest ethical standards, ensuring a harmonious future for the entire humankind, where every individual can live with dignity and self-respect. In accordance with the guidelines of the DAE,

adhering to highest ethical standards is one of the guiding values of sinp. Every complaint of malpractice or plagiarism received is investigated and appropriate action is taken.

32. Student profile programme -wise: NA

Name of the Programme (refer to question no.4)	Applicationsreceived	Selected		Pass percentage	
		Male	Female	Male	Female

33. Diversity of students- NA

Name of the Programme (refer to question no. 4)	% of students from the same university	% of students from other universities with in the State	% of students from universities out side the State	% of students from other countries

34. How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.:

NIL

35. Student progression

Student progression	Percentage against enrolled
UG to PG	100%
PG to M.Phil.	

PG to Ph.D.	
Ph.D. to Post-Doctoral	
Employed <ul style="list-style-type: none"> • Campus selection • Other than campus recruitment 	
Entrepreneurs	

36. Diversity of staff

Percentage of faculty who are graduates	
Of the same university	
From other universities with in the State	80%
From universities from other States	10%
from universities outside the country	10%

37. Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period:
 NONE

38. Present details of departmental infrastructural facilities with regard to

- a) **Library:** CENTRAL LIBRARY
- b) **Internet facilities for staff and students:** wi-fi campus+ LAN
- c) **Total number of classrooms:** 2
- d) **Class rooms with ICT facility:** 2
- e) **Students' laboratories:** 2

- f) **Research laboratories:** 1
39. **List of doctoral, post-doctoral students and Research Associates**
- a) **From the host institution/university:** 10
- b) **from other institutions/universities:** 1
40. **Number of post graduate students getting financial assistance from the university.:**
NO
41. **Was any need assessment exercise under taken before the development of new programme(s)? If so, high light the methodology:**
NO
42. **Does the department obtain feedback from :**
- a. **Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?**
Yes, we discuss the feedback in BOS and improve the syllabus and get it approved through executive council.
- b. **Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?**
We share the students feedback in faculty meeting provide suggestions for improving the teaching-learning-evaluation process for betterment of education system.
- c. **Alumni and employers on the programmes offered and how does the department utilize the feedback?**
NIL
43. **List the distinguished alumni of the department (maximum10):**
NOT YET
44. **Give details of student enrichment programmes (special lectures/**

workshops/ seminar) involving external experts:

Biweekly lectures by external experts.

45. List the teaching methods adopted by the faculty for different programmes

1. Power point presentation + Board teaching for B.Tech course
2. Board writing for B.Sc./M.Sc. courses
3. Group discussion and audio video aids among students for all the courses

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

- We take feedback from students through questionnaire (twice)
- We ask teachers about the course coverage (twice) to have track on the syllabus covered
- The department invites eminent guests to interact with the students in order to motivate them from their personal and professional experiences. This also provides an opportunity for a reality-check for the courses run by the department in order to meet the industry-requirements.

47. Highlight the participation of students and faculty in extension activities.

There is a Mentor who is also a faculty member and in general he takes one or more courses for a group of thirty students in every class. His role is to interact with students on one-to-one basis, and help them to resolve any issue which may come during the course of their study.

48. Give details of “beyond syllabus scholarly activities” of the department:

Expert talks are organized every month in which subject experts are invited to deliver lectures on topics of current research are introduced to the students and faculty members. For example, expert talk on “Experimental techniques in spectroscopy” was organized 30/8/2014 in which Prof. (Retired) P. K. Verma, Dept. of Physics, Aligarh Muslim University, Aligarh was invited to deliver lecture on spectroscopic techniques.

49. State whether the programme/ department is accredited/

graded by other agencies? If yes, give details.

NO

50. Briefly high light the contributions of the department in generating new knowledge, basic or applied.

- Papers(on referred Journal).
- Workshops & invited talks.
- Ph.D. Students- guidance

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

Strengths

The quality of students is very good because of very rigorous selection process adopted. Since a vast majority of the students are recruited through a tough selection process, a very high level of research output is ensured. This is contrary to the general trend seen elsewhere where students not finding employment are taking up research. After a tough selection, the training imparted to the students is of very high standard. The quality of research and infrastructural facilities available are very good. The funding is generous. Besides the students, the faculty profile is very strong, nationally and internationally known and there is a very strong peer pressure on students and faculties to do better.

Weaknesses:

Ensuring very high quality sometimes leads to a low number of students in some of the disciplines. Doctoral programme in engineering sciences has started expanding only in recent years. Faculty look at themselves as scientists first and give lower priority to mentoring students. This is expected to improve over the years as faculty takes more and more students.

Opportunities

Opportunity to do high level research having immediate application in national programmes. Opportunity to interact with scientist at national level and international level. Opportunity to get various forms of national and international recognitions in the form of fellowships and awards. Opportunity to develop various types of skills. Opportunity to do interdisciplinary research.

Challenges

To balance various types of responsibilities for the faculty. To balance between various types of responsibilities for the employees enrolled as students. To publish results of research on strategic topics without compromising classified nature of information. To ensure superiority in quality of research while doing doctoral research on large scale set-ups.

52. Future plans of the department :

Expand the doctoral programme so as to utilize the full potential of the faculties and research infrastructure. Particular emphasis will be given to develop qualified human resources required for the rapidly developing fields of high energy particle accelerators and lasers in the country for energy, medical and industrial applications.