

Evaluative Report of the Department

1. Name of the Department
Center for Development of Physics Education
2. Year of establishment
May, 1978
3. Is the Department part of a School/Faculty of the university?
Yes, Faculty of Science / Engineering
4. Names of programmes offered (UG, PG, M. Phil., Ph.D., Integrated Masters; Integrated Ph.D., D. Sc., D.Litt. etc.)
Center was offering M. Phil. and Ph.D. programmes in Physics and Engineering Physics respectively but these were discontinued from session 2013 – 14 due to certain reasons.
 - M. Phil. (Phys.),
 - M. Tech. (Engg. Phys.)
5. Interdisciplinary programmes and departments involved
Center was running four semesters M. Tech Programme in Engineering Physics in which faculty member from university Physics Department and from various engineering colleges were engaging classes. Centre is also providing repair & maintenance facility of instruments to various Departments / Colleges.
6. Courses in collaboration with other universities, industries, foreign institutions, etc.
The Engineering Physics course was designed after through consultation with faculty members from MNIT, Jaipur, Indra Prasth University, New Delhi and BARC, Mumbai.
7. Details of programmes discontinued, if any, with reasons:
M. Tech in Engineering Physics was discontinued from session 2013- 2014 as it needs up gradation of course. M. Phil. (Physics) programme was transferred to Department of Physics in 2012 after the start of M. Tech. programme at this center,
8. Examination System: Annual/Semester/Trimester/Choice Based Credit System
M. Phil. (Physics) programme going on at this center till few years back was having annual examination pattern while M. Tech. programme in Engineering Physics was having semester system with Choice Based Credit System. These courses are currently not running at this center.
9. Participation of the department in the courses offered by other departments
No faculty member is based at this center except its director. Director is a faculty member in Physics Department and engaging classes in that department.

10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)

Following are the details of faculty members in this department:

	Sanctioned	Filled	Actual (including CAS & MPS)
Professor	01	---	---
Associate Professors	02	---	01
Asst. Professors	---	---	---
Others	---	---	---

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

Following are the details of faculty members in this department:

Name	Qualification	Designation	Specialization	No. of Years of Experience	No. of Ph.D./ M. Phil. students guided for the last 4 years
Dr. Usha Singh	M.Sc. Ph. D.	Director (Additional Charge)	Solar Energy & Heat Transfer	31	
Y.K. Sharma	M.Sc. Ph. D.	Associate professor (Retired)	Mössbauer Spectroscopy	31	01
Y.K. Vijay	M.Sc. Ph. D.	Professor (Retired)	Material Science	33	10

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

- Visiting Fellows:
NIL
- Adjunct faculty
NIL
- Emeritus professors:
NIL

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

M. Phil. (Physics) - NIL

M. Tech. (Engg. Physics) - Nearly 10%

14. Programme-wise Student Teacher Ratio:

M. Phil. (Phys.)	20:1
M. Tech. (Engg. Phys.)	05:1

15. Number of academic support staff (technical) and administrative staff: sanctioned, filled and actual

Following is the position of ministerial, technical staff and lab bearers in this center:

S. No.	Name of Post	Sanctioned Post	Filled	Actual
Technical Staff				
1	STA(TE)	01	01	01
2	Sr. Scientific Asstt.	02	02	02
3	Jr. Scientific Asstt.	01	01	01
4.	JTA/JSA	01	01	01
Administrative Staff				
1	UDC	01	01	01
2	LDC	01	NIL	NIL
3	Peon	01	01	01
4	Safai Karamchari	01	NIL	NIL
5	Driver	01	NIL	NIL
6	TCO	01	NIL	NIL

16. Research thrust areas as recognized by major funding agencies:

ULP programme was recognized by UGC for funding.

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.

Faculty members including Director of this Center are associated with Deptt. of Physics and all their details are included in the report of Physics Department.

18. Inter-institutional collaborative projects and associated grants received

a) National collaboration

Center established informal collaboration with MNIT Jaipur, Indraprastha University, New Delhi, BARC, Mumbai for ongoing academic programmes.

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 / center with

- State recognition:
Experimental facilities developed at this center received state recognition and several colleges from this state are purchasing equipment's developed by this center.
- National recognition:
Experimental facilities developed at this center also received national recognition and colleges from this different state are purchasing equipment's developed by this center.
- International recognition:
Faculty members from several international institutions / center like ZIMBA also aware with the activities running at this center

21. Special research laboratories sponsored by / created by industry or corporate bodies :

NIL

22. Publications:

All details are included in the report of Physics Department

- * Number of papers published in peer reviewed journals (national/ international)
NA
- * Monographs
NIL
- * Chapters in Books
NIL
- * Edited Books:
NIL
- * 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.)
N.A.
- * Citation Index – range / average
NIL
- * SNIP
NIL
- * SJR
NIL
- * Impact Factor – range / average
NIL
- * h-index
NIL

23. Details of patents and income generated:

NIL

24. Areas of consultancy and income generated

This center provides consultancy in the area of “Instrumentation”. Center is developing equipment / providing repair facility as per requirement of colleges and university with no loss no profit basis.

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

- Prof. Vinod Kumar (Past Director) visited research laboratories in Russia, Czech Republic in correction with his research collaborations those centers.
- Prof. Y.K. Vijay- Received ICTP fellowship, TWAS fellowship for collaborative research work with universities in Kenya, Zimbabwe & Tanzania

26. Faculty serving in

a) National committees

NIL

b) International committees

NIL

c) Editorial Boards

NIL

d) any other (please specify)

NIL

Note: Faculty members associated with this center are also associated with department of Department of Physics and hence their details are included with the details provided in Physics Department.

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

CDPE is a development center of university which involved in the development of laboratory apparatus as per requirement of colleges / universities. However it is also organizing INSPIRE programme for the last two years for the benefit of students and teachers from different schools. The students attending INSPIRE camp are learning several physics related problem through developed experiments at this center.

28. Student projects

- Percentage of students who have done in-house projects including interdepartmental projects

100% percent students perusing M. Tech. Engineering physics were doing in house projects. Students from Physics Department & CCT are also doing their project work with available resources at this center. Nearly 1 to 2 percent students from constituent colleges of this university who are receiving INSPIRE fellowship are doing simple UG projects at this center with available resources.

- Percentage of students doing projects in collaboration with other universities/ industry/ institute

Nearly 1 to 2 percent students attending INSPIRE camps from different schools of this state and students receiving INSPIRE fellowship in colleges other than universities constituent colleges are doing simple projects at this center with available resources.

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

- Faculty
Details of awards received by faculty members of this center are included in the details of Physics Department
- Doctoral/ post doctoral fellows
NIL
- Students
NIL

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

CDPE is association with Department of Physics in organizing different National & International Conferences. Details are included with the details of Physics Department

- 26th AGM Material Research Society of India 2015 was convened, organized and assisted by CDPE staff
- Inspire Programme for school funded by DST, New Delhi, India has been organized by CDPE

31. Code of ethics for research followed by the departments

Codes of ethics for research are being followed as per UGC and University of Rajasthan norms.

32. Student profile programme-wise:

Following is the programme wise student profile:

Name of the Programme	Applications received	Selected		Pass percentage	
		Male	Female	Male	Female
M. Tech. (2011-12)	11	4	1	100	100
M. Tech. (2012-13)	14	5	1	100	100
From session 2013 onwards, M. Tech. (Engineering Physics) Programme was discontinued.					

33. Diversity of students

Following is the diversity of students:

Name of the Programme	% of students from the same university	% of students from other universities within the State	% of students from universities outside the State	% of students from other countries
M. Tech. (2011-12)	90%	10%	-	-
M. Tech. (2012-13)	100%	-	-	-
From session 2013 onwards, M. Tech. (Engineering Physics) Programme was discontinued.				

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

As per available information at this center, no student from this center has cleared any competitive examination during 2009-15.

35. Student progression

Following is the student's progression:

Student progression	Percentage against enrolled
UG to PG	NA
PG to M. Phil.	NA
PG to Ph.D.	NIL
Ph.D. to Post-Doctoral	NA
Employed <ul style="list-style-type: none"> • Campus selection • Other than campus recruitment 	Following four M. Phil. Students were selected as faculty members in Department of Physics, UOR: - <ul style="list-style-type: none"> • Shri. Dalpat Meena, • Shri Subhash Chandra , • Shri Mamraj Singh, • Shri Mahendra K. Gora
Entrepreneurs	NIL

36. Diversity of staff

Following is the diversity of staff:

Percentage of faculty who are graduates	
of the same university	-
from other universities within the State	67%
from universities from other States	33%
from universities outside the country	-

37. Number of faculty who were awarded M. Phil., Ph.D., D.Sc. and D.Litt. degrees during the assessment period:- 2009-2015

No faculty member was awarded M. Phil., Ph.D., D.Sc. and D.Litt. degree during the assessment period.

38. Present details of departmental infrastructural facilities with regard to

a) Library

This center has its own Library which houses nearly 1400 text books and journals

b) Internet facilities for staff and students

Wi-Fi and LAN facilities are provided to all faculty members, research scholars and PG students through University INFONET center.

c) Total number of class rooms

Center has 01 class room. In addition it also has a hall where experiments are displayed for visitors. Center organizes meetings and seminars in this hall.

d) Class rooms with ICT facility

Center has 01 class room with smart class setup

e) Students' laboratories

Center has 01 student's laboratory where M. Tech. students perform experiment. Earlier center was having its Museum in Vigyan Bhawan where developed experiments by this center were displayed.

f) Research laboratories

01

39. List of doctoral, post-doctoral students and Research Associates

a) from the host institution/ university:

Center is not running any research programme at present.

b) from other institutions/universities:

NIL

40. Number of post graduate students getting financial assistance from the university.

NIL

41. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.

The M. Tech. in Engg. Physics programme was initiated with extensive discussions with faculty members from MNIT Jaipur, Indra Prastha University, New Delhi, BARC, Mumbai & several other universities. These experts were visiting this center to update the course content and experiments. Informal feedback from students of this centre was also taken to update the course content.

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?

Center was taking informal feedback from faculty members when it was running M. Phil. and M. Tech. courses. Based upon their suggestions, the course curriculum was designed / modified; experiments / project work were revised.

- b. Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?

Center was taking informal feedback from students when it was running M. Phil. and M. Tech. courses. In M. Phil programme, mainly faculty members from colleges were taking admissions. The course content and laboratory experiments were so designed that these may be useful for students / teacher research fellows on their return after completion of course.

- 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

Following are few distinguished alumni of this center

- Prof. Sardar Singh,

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

Centre is organizing INSPIRE programme each year. Around 4 to 5 programmes were organized in 2013-14 with around 200 students from schools in each programme and 2 programmes were sanctioned for this session.

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

Faculty members normally adopt blackboard teaching method during their class room teaching. Several times they also apply power point presentation for better demonstration. Students perform project work and develop small experiments / equipment like power supply as per requirement of their course content. Center also organizes tutorials, Student Seminars and Group Discussions for the benefit of students.

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

Objectives of the Programme are constantly monitored by continuous evaluation and internal assessment in addition to the assessment of the performance of students in End-semester exams. Seminars and Viva-Voce exams on completion of project work. Center also ensures it through interaction with students and discussion with faculty members engaging classes at this center.

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

Faculty members of this center are involved in several other activities including:

- Delivering lectures / demonstration in INSPIRE Camps and in different Colleges
- F&S activities Lab equipment supplied to educational institutes and demonstration to faculty given through workshops at CDPE or at other under graduate colleges.
- In year 2014-15 instruments had been supplied to:-
 - Govt. College, Kota
 - Sant Jayacharya College, Jaipur
 - Kumanum University, Almora
 - JECRC University, Jaipur
 - Deptt. Of Physics, Ranchi University, Ranchi
 - GG Dutta Santan Dharma College, Chandigarh
 - Govt. College, Jaipur
 - Govt. College, Kishangarh
 - Baba Gangadas College, Shahpura
 - Maharani Laxmi Amari College, Banglore
 - Banglore Association for Science Education
 - SS College Amaravati, Maharashtra
 - SSGM College, Kopargaon, Maharashtra

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

Faculty members of CDPE are involved in development of experiments and manuals for self-study of Experiments. Students participate in sports week, plantation programme and inter departmental activities regularly.

49. State whether the programme/ department is accredited/ graded by other agencies? If yes, give details.

NIL

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

CDPE has organized DST supported 16 INSPIRE camps for the benefit of students of different schools. In addition center develops new apparatus and setups as per requirement of laboratories of different colleges and universities. These instruments are designed in such a way that students realize the actual working of each and every component put in the setup.

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

Following are major Strengths, Weaknesses, Opportunities and Challenges of the department:

Strengths

- Development Physics Lab equipment at no loss no profit basis

- Fulfilling Lab required of several colleges/universities.
- Providing Trainings to students of different departments and colleges having INSPIRE fellowship
- Organizing INSPIRE camps for the benefit of school students.

Weakness

- Lacking in terms of faculty /office /staff members
- Some of equipments in workshop are very old and requires new set of equipment.
- Part of space is given to INFONET centre hence requires more space for classrooms for classes rooms.
- Non availability of modern software for training of students.
- Center requires a Museum for display of developed experiments at this center

Opportunities

- CDPE can create and maintain online lab sources for Physics education.
- CDPE can plan online lectures of eminent scholars/experts for the benefit of school students.
- Due to availability of qualified technical staff, it can provide training of fabrication of lab equipments.

Challenges

- Revision of M. Tech. / M. Phil. Course content looking present requirement.
- M. Tech. Course accreditation by AICTE.
- Center is planning to start 5 years integrated course in Physics in place of presently running B.Sc. (Hons.) Physics Course at constituent colleges.
- Recruitment of faculty members & office staff.

52. Future plans of the department.

Following are the future plans of this department:

- Development of new Experiments: Center wants to develop experiments like Spark chamber, Rutherford scattering, Foucault pendulum, laser diffraction, holography, Carbon nanotube formation, Fuel cell (hydrogen) in near future.
- Maintenance of Renowned Lab equipment at centre (Museum)
- Maintenance of M.Sc. Physics Lab of Deptt. of Physics.
- Fabrication and supply of experimental set up on demand.
- INSPIRE programme for school children.
- Arrange experimental workshop for faculty.