

Evaluative Report of School of Physics

1. Name of the Department School of Physics
2. Year of establishment 1971
3. Is the Department part of a School/Faculty of the university? Faculty of Science of university
4. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.)

Programs	Number	Course/Subjects
PG	2	M. Sc. (Physics), M. Sc. (Material Science)
M.Phil.	1	Physics
Ph.D.	1	Physics
Any other (please specify)	1	M.Tech .(Laser Sc. & App.)
Total	5	

5. Interdisciplinary programmes and departments involved Nil
6. Courses in collaboration with other universities, industries, foreign institutions, etc. Nil
7. Details of programmes discontinued, if any, with reasons Nil
8. Examination System: Annual/Semester/Trimester/Choice Based Credit System. Semester system is followed in all courses
9. Participation of the department in the courses offered by other departments Nil
10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)

Positions	Teaching faculty			Non-teaching staff	Technical staff
	Professor	Associate Professor	Assistant Professor		
Sanctioned by the UGC / University / State Government	02	04	06	03	12
Recruited	01	01	06	01	06
Yet to recruit	01	03	Nil	02	06
Number of persons working on contract basis	NIL	NIL	NIL	04	01

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. students guided for the last 4 years
Dr. Ashutosh Mishra	M. Sc. Ph. D	Professor & Head	X-Ray Spectroscopy	25	04
Dr. Anup Kumar Dutta	M. Sc. Ph. D	Professor	Nuclear Physics	32	02
Dr. Pratima Sen	M. Sc. Ph. D	Professor	Nano photonics, Laser Physics	32	02
Dr. Dinesh Varshney	M. Sc., M. Phil., Ph.D., M.B.A	Professor	Materials Science	26	05
Dr. Ganeswar Mishra	M. Sc. Ph. D	Professor	Undulator and FEL	22	02
Dr. Mandira Banerjee	M. Sc. Ph. D	Professor	Polymers Physics	27	Nil
Dr. Shashank N Kane	M. Sc. Ph. D	Reader	Magnetic Materials	22	02
Dr. Yaduvenda Choyal	M. Sc. Ph. D	Sr. Lecturer	High Power Microwave	17	02

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

13. Programme-wise Student Teacher Ratio M. Sc. 8:1, M. Phil. 13:8, M.Tech. 13:8

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

Academic support : Sanctioned: 12 Filled: 06

Administrative support: Sanctioned: 03 Filled: 01

15. Research thrust areas as recognized by major funding agencies

- (i) Material Science- Nanomaterials and their structural, electronic, optical and magnetic properties.
- (ii) Lasers- Fiber Optics, Free Electron Lasers
- (iii) High power microwave devices and Plasma physics.

16. 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.

1.	Optical, electrical, magnetic and ferroelectric properties of undoped BaTiO ₃ and doped BaTiO ₃ by Iron (Fe), Copper (Cu) and Cobalt (Co). (Dr. Ashutosh Mishra)	University Grants Commission, Department of Atomic Energy, Consortium for Scientific Research (UGC) (DAE) (CSR) (National)	Rs.5,36,400/-	04-11-2008	30-09-2012
2.	Effect of doping on structural, magnetic, electrical and dielectric properties of Sol-Gel prepared nano-particles and pulse laser deposited thin films of BaTiO ₃ . (Dr. Ashutosh Mishra)	University Grants Commission, Department of Atomic Energy, Consortium for Scientific Research (UGC) (DAE) (CSR) (National)	Rs.3,82,000/-	26-11-2012	25-11-2015
3.	Structural, electrical and magnetic properties of doped BiFeO ₃ multiferroics. (Dr. Dinesh Varshney)	University Grants Commission, New Delhi	Rs.7,30,000/-	01-06-2011	31-05-2014
4.	Structural, and physical properties of pure and doped BiFeO ₃ multiferroics. (Dr. Dinesh Varshney)	University Grants Commission (UGC)- Department of Atomic Energy (DAE) Consortium for Scientific	Rs.3,82,000/-	01-05-2012	31-04-2015

		Research			
5.	UGC innovative program (M.Sc. Physics-Materials Science). (Dr. Dinesh Varshney)	UGC, New Delhi	Rs.23,50,000/-	01-04-2004	31-03-2009
6.	Physical properties and superconductivity of metallic Boron in Borides. (Dr. Dinesh Varshney)	UGC, New Delhi	Rs.3,35,000/-	01-05-2006	31-04-2009
7.	Structural phase transition and lattice mechanical properties of rare earth semiconducting chalcogens. (Dr. Dinesh Varshney)	Defence Research and Development Organisation, New Delhi	Rs.18,56,600/-	01-05-2008	31-04-2012
8.	Effect of chemical disorder on the transport properties of colossal magnetoresistive materials. (Dr. Dinesh Varshney)	Madhya Pradesh Council of Science and Technology, Bhopal	Rs.3,00,000/-	01-08-2008	30-07-2010
9.	Transport properties of doped Ferrite thin films. (Dr. Dinesh Varshney)	UGC, DAE, CSR, Indore	Rs.3,82,000/-	01-06-2009	31-05-2012
10.	Design and theory of hybrid undulator for free electron laser. (Dr. G Mishra)	UGC, New Delhi	Rs.10,23,800/-		
11.	Undulator technology for free electron laser. (Dr. G Mishra)	DRDO, New Delhi	Rs.32,00,000/-		

12.	Optimization of permanent and electromagnet undulator for free electron laser. (Dr. G Mishra)	Department of Science and technology, New Delhi	Rs.23,70,000/-		
13.	Investigation of polymer structure and nanocomposites. (Dr. Mandira Banerjee)	DRDO, Ministry of Defence, Govt. of India, New Delhi	Rs.14,79,710/-	25-05-2006	31-08-2008
14.	Study of the melting behavior of soft condensed matter thin films. (Dr. Mandira Banerjee)	UGC-DAE-CSR, Indore, (under UGC-DAE collaborative Research Scheme)	Rs.1,31,000/- (First year) Rs.2,03,300/- (Second year)	01-10-2011 (First year) 01-04-2012 (Second year)	31-03-2012 (First year) 31-03-2013 (Second year)
15.	Electronic and optical properties of ZnO based multilayered thin films. (Dr. P Sen)	UGC-DAE-CSR, Indore	Rs.1,50,200/-	2011	2014
16.	Electronic and optical properties of pure and doped II-VI semiconductor nanostructures. (Dr. P Sen)	DST, New Delhi	Rs.14,35,200/-	2012	2015
17.	Spin dynamics and coherent control in semiconductor quantum dots. (Dr. P Sen)	DST, New Delhi	Rs.15,58,848/-	2008	2011
18.	Non-Invasive detection of blood glucose/urea using optical low coherence reflectometry. (Dr. P Sen)	UGC, New Delhi	Rs.11,93,800/-	2008	2011

17. Inter-institutional collaborative projects and associated grants received

- a) National collaboration b) International collaboration

In the framework of Indo-French research cooperation, Dr.S. N. Kane, Reader School of Physics, Devi Ahilya University, Indore India and Prof. F. Mazaleyrat, ENS de Cachan, Cachan (Paris), FRANCE has produced FIRST-JOINT Ph. D. student : Salil Modak between India and France in 2009.

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received.

UGC innovative program (M.Sc. Physics- Materials Science). (Dr. Dinesh Varshney- (Coordinator)	UGC, New Delhi	Rs.23,50,000/-	01-04-2004	31-03-2009
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20. Research facility / centre with State recognition

The Department is recognized by M.P. Govt. for its research facilities.

National recognition

The Department is recognized by DST, UGC and other National bodies for its research facilities.

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)
- Monographs
- Chapters in Books
- Edited Books
- Books with ISBN with details of publishers

Year	Publication	Papers	Monographs	Chapters in Book	Edited Book
2012-13	58	58			
2011-12	68	68			
2010-11	34	34			
2009-10	46	46			

- 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	0- 400
SNIP	NA
SJR	NA
Impact Factor – range / average	1- 4
h-index	4-25

23. Details of patents and income generated Nil
24. Areas of consultancy and income generated
Dr. S. N. Kane is providing consultancy services to RSAL Steel Pvt. Ltd, Indore (INDIA), Since 2009 – till date.
25. Faculty selected nationally / internationally to visit other laboratories / institutions industries in India and abroad

Dr. S. N Kane	Associate Professor	ENS de Cachan, France.	May-June 2012
		deCachan, France.(study leave, Invited Prof.)	Sept-Oct 2011
		ENS de Cachan, France.	May-June 2010
		ENS de Cachan, France.	May-June 2009
Dr. S. N Kane	Associate Professor	Pohang, Univ of Science and technology, Pohang, South Korea. (EOL, invited research Prof).	Jan-Dec 2008
Dr S. N Kane	Associate Professor	ENS de Cachan, France.	May-June 2012
Dr.A.K.Dutta,	Professor	Univ of Bruxelles, Brussels, Belgium	Nov1-Dec 1, 2009
			Oct 22- Nov 19, 2010
			Sept 13-oct 7, 2011
			Sept 8- Oct 5 2012
Dr.A.K. Dutta	Professor	University of Montreal, Montreal, Canada	Visited in June-July 2008.

26. Faculty serving in
- National committees
 - International committees
 - Editorial Boards
 - any other (please specify)

Dr. Ashutosh Mishra, Professor, School of Physics, Devi Ahilya University, Indore– 452001 Guest Editor: The International Conference on Recent Trends in Physics (ICRTP2012) took place in Indore, India, on 4–5 February 2012. The conference was hosted by the School of Physics, Devi Ahilya University, Indore– 452001.

International Conference on Recent Trends in Physics (ICRTP 2012) IOP Publishing Journal of Physics: Conference Series 365 (2012) 011001 doi:10.1088/1742-6596/365/1/011001

Dr. A.K.Dutta, Professor, Member Board of Governors, Inter University accelerator centre (IUAC), New Delhi from July 2008 to June 2010.

Dr. Anup Kumar Dutta, Professor, School of Physics, Devi Ahilya University, Indore– 452001 Guest Editor: The International Conference on Recent Trends in Physics (ICRTP2012) took place in Indore, India, on 4–5 February 2012. The conference was hosted by the School of Physics, Devi Ahilya University, Indore– 452001.

International Conference on Recent Trends in Physics (ICRTP 2012) IOP Publishing Journal of Physics: Conference Series 365 (2012) 011001 doi:10.1088/1742-6596/365/1/011001

Dr. Pratima Sen, Professor, School of Physics, Devi Ahilya University, Indore-452001 Guest Editor: The International Conference on Recent Trends in Physics (ICRTP2012) took place in Indore, India, on 4-5 February 2012. The conference was hosted by the School of Physics, Devi Ahilya University, Indore-452001.

International Conference on Recent Trends in Physics (ICRTP 2012) IOP Publishing Journal of Physics:Conference Series 365 (2012) 011001 doi:10.1088/1742-6596/365/1/011001

Dr. Shashank N Kane, Reader, School of Physics, Devi Ahilya University, Indore-452001 Guest Editor: The International Conference on Recent Trends in Physics (ICRTP2012) took place in Indore, India, on 4-5 February 2012. The conference was hosted by the School of Physics, Devi Ahilya University, Indore-452001.

International Conference on Recent Trends in Physics (ICRTP 2012) IOP Publishing Journal of Physics: Conference Series 365 (2012) 011001 doi:10.1088/1742-6596/365/1/011001

28. Student projects

- percentage of students who have done in-house projects including inter-departmental projects 60%. Students carry out in-house projects.
- percentage of students doing projects in collaboration with other universities industry / institute 40% students carry out project work at National Institutes

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

- Faculty
- Doctoral / post doctoral fellows
- Students
- Many faculty members are referees of the International Journals.
- Dr. Kailash Nath Katju Award for Sciences, in 2007 for outstanding contributions in condensed matter physics to Dr. Dinesh Varshney, Professor.
Bharat Jyoti Award and Certificate of Excellence [India International Friendship Society for meritorious contributions in Science and Technology Education for the year 2011 to Dr. Dinesh Varshney, Professor.
- Dr. Arvind Yogi Ph. D student of Dr. Dinesh Varshney, Professor gets Post Doctoral fellowship at Indian Institute of Science Education and Research (IISER) Thiruanantpuram
- Saikat Chattopadhyay Ph. D Student of Prof P Sen gets pre Post Doctoral fellowship at Indian Institute of Science Education and Research (IISER) Pune

3. Code of ethics for research followed by the departments
We follow the code of ethics formulated by UGC
1. To avoid piracy in research work and acknowledge the persons and funding agencies which helped in successful completion of research activities.
 2. Encourage the research scholars to carry out independent research work.
 3. Access to laboratory instruments for users (other Universities and National laboratories)
 4. Respect for Intellectual property rights of individual and institutions
 - i. Explicitly acknowledge the work of others when referring to them in any shape, form or manner in his/ her own work.
 - ii. Follow principles of ethical and social responsibility
4. Student profile programme-wise:
12 Student profile course-wise:

2008-2009

Name of the Course (refer to question no. 4)	Applications received	Number of students admitted	Min. and Max. pass percentage in qualifying examination			
			Male		Female	
			Max	M	M	M
M. Sc	40	18	75	52	78	53
M.Tech	15	08	82	65	78	62
M. Phil	33	17	80	58	80	57

2009-2010

Name of the Course (refer to question no. 4)	Applications received	Number of students admitted	Min. and Max. pass percentage in qualifying examination			
			Male		Female	
			M	M	M	M
M. Sc	74	24	79	51	80	55
M.Tech	25	08	80	64	82	63
M. Phil	36	19	75	59	82	58

2010-2011

Name of the Course (refer to question no. 4)	Applications received	Number of student admitted	Min. and Max. pass percentage in qualifying examination			
			Male		Female	
			M	M	M	M
M. Sc	69	22	80	52	81	55
M.Tech	12	03	75	68	-	-
M. Phil	23	19	75	55	79	58

(2011-2012)

Name of the Course (refer to question no. 4)	Applications received	Number of students admitted	Min. and Max. pass percentage in qualifying examination			
			Male		Female	
			Max	Min	Max	Min
M. Sc	59	27	78	51	79	53
M.Tech	31	08	77	63	78	66
M. Phil	42	19	74	56	76	58

(2012-13)

Name of the Course (refer to question no. 4)	Applications received	Number of students admitted	Min. and Max. pass percentage in qualifying examination			
			Male		Female	
			Max	Min	Max	Min
M. Sc	102	45	78	52	79	56
M.Tech	54	14	79	65	80	62
M. Phil	36	20	80	58	75	58

A.13 Diversity of students

Name of the Course	% of students from the same university	% of students from other universities within the State	% of students from universities outside the State
M.Sc	64.4%	13.3%	6.6%
M.Tech	27.7%	27.7%	16.6%
M.Phil	55%	11.1%	5.5%

- The PhD theses are submitted only after good publications in Journals of good impact factors and in journals cited in scopus and web of science.

34. Record of how many students have cleared Civil Services and Defence Services examinations, NET, SET, GATE and other competitive examinations? Give details

category-wise.

National Eligibility Test (NET)- 02

1. Nidhi Parmar 2008
2. Akhil Tayal 2013

Graduate Aptitude Test (GATE)- 05

1. Anjali Jain 2013
2. Anuradha Gupta 2012
3. Kalpana Singh 2011
4. Kamal Warshi 2011
5. Gaurav Pathak 2010

34. Student progression

Student progression	Percentage against enrolled
PG to M.Phil.	25%
PG to Ph.D.	35%
Ph.D. to Post-Doctoral	5%
Employed	35%
<ul style="list-style-type: none"> • Campus selection • Other than campus recruitment 	

The following students are carrying out PhD in our university and in various national and International Universities:

M.Sc. Physics		
S.No	Name	Year
1	Shivani Rana	2008
2	Partha Khanra	2008
3	Surendra Yadav	2009
4	Sagar Agrawal	2009
5	Sadique Mohammad	2010
6	Sapna Tripathi	2010
7	Sanjeev Kumar	2010
8	Rohan Mittal	2010
9	Renuka Tayade	2010
10	Pinaki Das Gupta	2010
11	Amit Jain	2010
12	Alka Pareek	2010
13	Sonu Yadav	2010
14	Tanuj Gupta	2011
15	Sagar Sen	2012

M.Phil Physics		
S.No	Name	Year
1	Beerendra Singh	2008
2	Samrath Ninama	2009
3	Kamaljeet Singh Sura	2009
4	Garima Jain	2009
5	Kavita Verma	2009
6	Roma Khullar	2010
7	Geetanjali Sharma	2010
8	Varsha Yadav	2011
9	Harsha Patil	2011
10	Sonam Dwivedi	2011
11	Kalpana Singh	2011
12	Jyoti Prakash Dwivedi	2012
13	Arpana Agrawal	2012
14	Bramh Prakash	2012
15	Tanveer Ahmad Dar	2012
16	Manvi Satalkar	2012

M.Tech (Laser Sc & Appl)		
S.No	Name	Year
1	Deepa Chaturvedi	2009
2	Arpit Saraf	2010
3	Vishnu Awasthi	2011
4	Omprakash Choudhary	2011
5	Gaurav Pathak	2012
6	Rahul Pandey	2013

35. Record of Diversity of staff Percentage of faculty who are graduates

of the same university	37.5%
from other universities within the State	62.5%
from universities from other States	Nil
from universities outside the country	Nil

36. Number of faculty who were awarded Ph.D., D.Sc. and D.Litt. during the last four years : Nil

37. Present details of infrastructural facilities in the department with regard to

a) Library	Yes
No of titles	529
Volumes	3084
Project Reports	198
Video Lectures	Faculty members teach through power point presentations.

b) Internet facilities for staff and students	100%
c) Total number of class rooms	Five
d) Class rooms with ICT facility	Five
e) Students' laboratories	Five
f) Research laboratories	Seven

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

- a) from the host institution/university
 1. Dr. Arvind Yogi Ph. D student of Dr. Dinesh Varshney, Professor gets Post Doctoral fellowship at Indian Institute of Science Education and Research (IISER) Tiruanantpuram.
 2. Saikat Chattopadhyay Ph. D Student of Prof P Sen gets pre Post Doctoral fellowship at Indian Institute of Science Education and Research (IISER) Pune.
- b) from other institutions/universities
 1. Dr Naveen Kulkarni (D S Kothari awardee) from Pune University year 2010
 2. Dr Arindum Ghosh (D S Kothari awardee) from Aurangabad

University year 2011-12.

40. Number of post graduate students getting financial assistance from the university. AICTE Fellowship given to M.Tech Students = 05

Post Metric Fellowship:-

Year	Amount Received	Category	No of Students
2008-09	17700	ST	02
	12740	SC	01
2009-10	19500	ST	02
	40690	SC	03
2010-11	13700	ST	02
	27960	SC	05
2011-12	13000	ST	03
	52050	SC	03
2012-13	Not Received		

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

Curriculum feedbacks were taken from the Eminent Scientists and Scholars for examples,

1. Padmshree Dr M S Sodha, F.N.A, Shanti Swarup Bhatnagar Awardee, ex-Vice Chancellor-Indore, Bhopal, Lucknow.
2. Padmshree Dr D D Bhawalkar, ex-Director, Raja Ramanna Center for Advanced Technology, Deptt. of Atomic Energy, Indore.

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, it has been discussed in the faculty meeting held monthly.

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

1. The comments given by the students along with the inputs from faculty are analyzed by a committee consisting of senior Professors of the Department. The report regularly hosted on IQAC website of University, Indore.

2. The committee gives a report to the Head who communicates the remarks for due consideration.

- c. Alumni and employers on the programs offered and how does the department utilize the feedback?

Yes, analysis in a meeting for the purpose is performed.

Curriculum feedback is taken from experts of comprehensive viva committee at the end of each semester.

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

1. Dr. Vasant Sathe (UGC-DAE-CSR, Indore) year 1987
2. Mr. Mahesh Sharma, Industrialist, Marketing Centre, Indore year 1981

3. Mr.A.Kela, Industrialist.Year 1989
 4. Dr. K.K.Marhase, PRL Ahmedabad.1995
 5. Dr. Joydeep Ghosh, Scientist ,IPR,Gandhinagar.1993
 6. Mr. Vinod Rawat, Scientist,BARC ,Mumbai.
 7. Dr. Anshuman Dalvi, BITS ,Pilani.1997
 8. Dr. Kailash Ruwali, Scientist , RAJA RAMANNA CENTER FOR ADVANCED TECHNOLOGY,Indore 1994
 9. Dr. Pooja Gupta, Scientist , RAJA RAMANNA CENTER FOR ADVANCED TECHNOLOGY,Indore1999
 10. Dr. P Prakash ,Scientist, IUAC New Delhi 1985
44. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.
- The list of eminent persons of the student enrichment programmes (special lectures) given below.

1. Dr. L M. Kukreja, Scientist, RAJA RAMANNA CENTER FOR ADVANCED TECHNOLOGY,Indore 12th Aug 2012
2. Dr. S.N .Joshi, Scientist , CEERI ,Pilani Sept 13 2012
3. Dr. V.K.Tripathi, Professor, IIT Delhi.4 Nov, 2012
4. Dr.B.D.Shrivastava, Retd Professor, Vikram Univ, Ujjain.12 Jan 2013
5. Dr.P.K.Gupta, Scientist ,RAJARAMANNA CENTER FOR ADVANCED TECHNOLOGY, Indore. 14 Jan 2012
6. Dr. R.C. Verma, Environmentalist , Ujjain 28 Feb 2013
7. Dr. Ramsagar, Director, ARIES, Nainital, Utrakhand 4 March 2013
8. Dr. Anil Kakodkar, Chairman, Atomic Energy Commission of India & Secretary to Govt of India.
9. Dr. Yashwant Gupta (National Centre for Radio Astrophysics, Pune)
- 10.Dr. Amalendu Chandra (I .I .T .,Kanpur).
- 11.Dr. Anil Bharadwaj(Vikram Sarabhai Space Centre, Thiruvanthapuram
- 12.Prof A.K. Ghatak (Emeritus Professor I.I.T. Delhi)
- 13.Dr.D.D.Bhawalkar (Former , Director, RRCAT, Indore)
14. Dr. M.S.Sodha (Former Vice –Chancellor ,Indore, Lucknow and Bhopal Universities)
15. Dr.Rama Govindrajan (IISc, Bangalore)

45. List the teaching methods adopted by the faculty for different programmes.
- School of Physics adopts practical approach of teaching. The faculty gives assignments, power point presentations. The teaching method such as chalk board teaching, e-learning etc. are the part of our teaching methods.

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

Some students graduating from the department pursue PhD in the department while several of them opt for higher education programs from other universities and abroad. Faculty meetings are convened regularly for monitoring.

46. Highlight the participation of students and faculty in extension activities.
 1. Participation in Indian Physics Association (IPA) Programs. Prof Pratima Sen is President, IPA, Indore chapter.
 2. We have organized seminars in schools for popularizing Physics amongst young students.
 3. IPA had also organized seminar at Holkar college, Indore to explore the job prospects of Physics students in industries.
 4. IPA Indore chapter had organized two CV Raman Lectures at Indore.
 5. Prof A K Dutta is Vice President of Indian Physics Teachers association (IPTA), (M. P. zone) for the session 2013-15.
 6. IPTA conducts workshops for teachers to enhance laboratory activities at UG and PG levels.
 7. Several UGC sponsored “Refresher courses in Physics” have been organized by the department.
 8. Participation in activities related to the GREEN CALENDER of the University and implementation of University Green Policy released by Bharat Ratna Dr. AP.J Abdul Kalam on 12.6.13.
 9. Blood donation Camps.
 10. Clean Campus Drive, March 17, 2013.
 11. March for awareness for ‘Clean river of Indore’, March 16, 2013.

48. Give details of “beyond syllabus scholarly activities” of the department.
 1. Eminent Experts deliver lectures to the students and inform them about the latest advancements.
 2. Students and Faculties are involved in activities of Indian Physics Association (IPA) Programs & Indian Association of Physics Teachers. (IPTA)
 3. Students participate in the conferences. This keeps them abreast with the latest knowledge.
 4. Students attend summer training programs at various National Institutes e.g.
 - (i). Tata Institute of Fundamental Research,(TIFR), Mumbai
 - (ii). Institute of Plasma Research,(IPR), Gandhi Nagar
 - (iii). Physical Research Laboratory,(PRL), Ahmedabad
 - (iv). Raja Ramanna Centre for Advanced Technology,(RRCAT), Indore.
 - (v). University Grants Commission-Department of Atomic Energy Consortium for Scientific Research, (UGC-DAE CSR), Indore.
 - (vi). Inter University Accelerator Centre, (IUAC),New Delhi
 Besides this, several students undertake summer training with several faculty members.

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.

School is serving the Nation by generation of new basic and applied knowledge since 1971.

1. Since its inception the School has educated about 1000 M.Sc. graduates, about 125 M.Tech .graduates and about 100 Ph.D. who are serving the Nation as Scientists or Educators. Several of them are serving abroad.
2. Research areas are Condensed matter Physics, Nanoscience and Nanotechnology, Nanophotonics, Quantum Electronics, Plasma Physics, Free Electron Lasers, Polymer Science, Magnetic materials, Nuclear Physics, Thin film technology.
3. School offered the first M.Tech. laser program in the country in 1993 with the support of Raja Ramanna Center for Advanced Technology, Department of Atomic Energy, Indore.
4. School has reputation of excellent research contributions and has published around 350 papers in the last five years in internationally reputed journals.
5. School has also trained a number of faculty members from physics departments of affiliated colleges through refresher courses.

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

Five Strengths:

1. All faculty members possess a Ph.D. degree and have research projects from national agencies.
2. Faculty members have been regularly carrying out research at reputed National and International Universities and Laboratories.
3. Excellent teaching-learning process.
4. Very good laboratories which include Laser laboratory, Electronics Laboratory, and Fiber optics Laboratory.
5. Faculty members collaborate with in- campus UGC-DAE CSR, and Raja Ramanna Center for Advanced Technology at Indore and worked as Team work

Five Weaknesses:

- (i). Poor M P State Govt. Funding
- (ii). Trend of Brilliant Students have more inclination for MBA and Engineering than Physics in recent years. How ever this year around 232 students have applied for Physics course.
- (iii). Inadequate laboratory staff.
- (iv). Need of additional teaching faculty, administrative staff and Technical staff and librarian.
- (v) Need for enhancing the e-learning and mobile based teaching/learning.

Five Opportunities:

- (i) More number of Consultancy from faculty to Industry. School is providing this opportunity but to increase the industry exposure it is high time to do so.
- (ii) Research activities to be increased by getting more research projects from different funding agencies. The number of research publications may be increased and also the research students in the school.
- (iii) If possible with in the frame of rules the Student ex-change programmes with other universities of the country and abroad.

(iv) motivate the post graduate students for Developing scientific temper by providing the information through lectures of eminent scientist and visits to scientific organisations.

(v) A very good scope of Industry-institute linkages through interactions of faculty members of school and industry personalities.

Five Challenges:

1. To generate interest of brilliant students towards Physics to strengthen basic and applied research work in country.
2. To attract International students for study at the School.
3. To get industry support.
4. To streamline University governance using new IT tools.
5. To move towards intensive use of e-resources and virtual classrooms.

52. Future plans of the department.

I. New Courses

School of Physics is successfully running M. Sc. (Physics), M. Sc. (Physics, Material Science), M. Phil. (Physics), M. Tech. (Laser Science and Applications). Looking to the development of new research organizations and industries, following programs are planned are in future:

- a) M. Tech. (Photonics);
- b) M. Tech. (Nano materials technology);
- c) M. Sc. Physics (Five year integrated program).

II. New laboratories [M. Sc., M. Phil., M. Tech.]

Virtual classrooms, virtual laboratory and simulation experiments are planned. School is planning for virtual classroom as a part of a grid of virtual classrooms in the campus which will enable students to take full advantage of national mission of knowledge connectivity in the campus with 1 Gbps network.

School of Physics endures that the students have an exposure in Electronics; Nonlinear Optics; Materials Science; Numerical Techniques, Laser Physics; Fiber Optics; Thin Film Technology, Spectroscopy and High power microwave generation laboratories.

The equipments available in these laboratories need up gradation and advanced equipments are planned for a comprehensive training.

III New Research laboratories

Faculty members of School of Physics are actively engaged in research and development activities. This will enable the Department to meet the new challenges and will allow the students to have better opportunity for employments in national / international laboratories and organizations. Following facilities are planned:

- a) Advanced Materials Science laboratory
- b) Laboratory for Characterizing Materials
- c) Undulator development laboratory
- d) High power microwave laboratory
- e) Applied optics and Nonlinear Optics laboratory

f) Computational Physics Laboratory

IV. Library facilities

Library of School of Physics contains 529 titles and a total of 3084 volumes as on 30.6.13. With a vision of new programs and laboratories, it is also intended to have sound and well equipped library with recently published books, periodicals, journals, CDs, Video lectures, e-books, and web downloaded resources in the library.

V. Conferences/ Summer Schools

School is planning to organize at least one national / international conference/ Summer School each year thereby providing an opportunity to the students, researchers and faculty members to interact with the other participating eminent scientists and professors. This will enhance their knowledge in the new domains of technology oriented physics and other streams of physics.

VI. Infrastructure

School of Physics possesses 744 sq. m area. The building was built in 1971. New building is planned with area of 1000 sq. m. Another building, Laser Bhawan, was constructed in 1999. Plans for renovation are in progress during the Golden Jubilee Year of the university in 2014. UGC assistance is also expected in XII plan.

VII. Financial support

Research projects funded by several agencies as DRDO, UGC, DST, MPCST, DAE BRNS are in progress. It is planned that the frequency of research proposals should be increased so that the quality of research as well amount of funds generated be raised.

VIII. Memorandum of understanding (MOU)

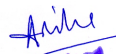
For the effective development and training of students, new memorandum of understanding (MOU) with other national / international organization must be made. At present School of Physics has MOU with Raja Ramanna Center for Advanced Technology, Indore, UGC-DAE CSR Indore, Institute for Plasma Research, Gandhinagar, Physical Research Laboratory, Ahmedabad and IUAC, New Delhi.

Declaration by Head of the Department - c

I certify that the data included in this Self-Study Report (SSR) are true to the best of my knowledge.

This SSR is prepared by the institution after internal discussions, and no part thereof has been outsourced.

I am aware that the Peer team will validate the information provided in this SSR during the peer team visit.


Prof. & Head
School of Physics
Dev Ahilya Vishwavidyalaya
Khandwa Road, INDORE-452017

Signature of the Head of the institution
with seal:

Place: Indore
Date: Aug. 2013