

## Evaluative Report of physics Department

The self evaluation of every department may be provided separately in about 3-4 pages, avoiding the repetition of the data.

1. Name of the department : **Physics**
2. Year of establishment : **1993**
3. Names of Programmes/ Courses offered :

Sr. No.	Courses Offered (UG)
1	B.Sc. (Physics ) T.Y. B. Sc (Physics) started from the academic year 2007-2008.
2	F.Y.B. Sc. Biotechnology

4. Names of Interdisciplinary courses and the departments / units involved :
  - **B.Sc. (Biotechnology)**

**Department involved in other department for projects >>**  
**Electronics, Chemistry, Microbiology, Zoology, Sports,**  
**Botany, Biotechnology**

5. Annual/semester/choice based credit system (programmewise) :

Name of the Course	Programme
F. Y. B. Sc.	Annual
F.Y.B.Sc . Biotechnology	Annual
S. Y. B. Sc.	Semester
T. Y. B. Sc.	Semester

6. Participation of the department in the courses offered by other departments :

Name of the Department	Courses offered

Biotechnology	F.Y. B.Sc. (Biotechnology)

7. Courses in collaboration with other universities, industries, foreign institutions, etc. –

Courses	Name of the Institution
Workshop on “Physics in Archaeology”	Deccan College, Deemed University
Workshop on “Telescopes and Astronomy”	Khagol Vishva, Pune
workshop on “Laboratory Safety	Sciencetech Instruments, Pune

8. Details of courses/ programmes discontinued (if any) with reasons : **Nil**

9. Number of Teaching posts

	Sanctioned	Filled
Asst. Professors	4	4

10. Faculty profile with name, qualification, designation , specialization,(D.Sc./D.Litt./Ph.D./M. Phil.etc.,)

Name	Qualification	Designation	Specialization	No. of Years of Experience	No. of Ph.D. Students Guided for the last 4 years
Mrs. Varsha Joshi	M.Sc. ( Physics) Sangeet Visharad	Head, Assistant Professor	Electronics	27	Nil
Mr. Mahendra Waghmare	M.Sc. ( Physics), SET	Assistant Professor	Physics with Electronics	20	Nil

Mrs. Chhaya Abnave	M.Sc. ( Physics)	Assistant Professor	Material Science, Electronics	9	Nil
Mr. Pawan Surwase	M.Sc. ( Physics)	Assistant Professor	Material Science, Energy studies	1	Nil

11. List of senior visiting faculty :

Sr. No.	Name of the Visiting Faculty
1	Dr. Ravindra Kshrisagar
2	Dr. Mohini Kute
3	Mrs. Deepali Meher
4	Mr. Deepak Kumbhar
5	Mr. Niket Tajane
6	Dr. Pooja Rana

12. Percentage of lectures delivered and practical classes handled (programmewise)  
By temporary faculty\

**Only Biotechnology practicals 100 % are taken by temporary faculty.**

13. Student-Teacher Ratio (programmewise)

Class	Theory	Practical
F.Y.B.Sc.	60:1	20:1
S.Y.B.Sc	20:1	20:1
T.Y.B.Sc	14:1	14 :1
F.Y.B.Sc. ( Biotechnology)	75:1	25:1

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

	Sanctioned	Filled
Technical Staff	02	02
Administrative staff	02	02

15. Qualifications of teaching staff with D.Sc./ D. Lit /Ph.D./ M. Phill./P.G. :

Qualification	No. of staff
Ph .D. ( Registration under process)	01
P.G.	04

16. Number of faculty with ongoing projects from a) National b) International funding

agencies and grants received:

Sr . No	Name of the Investigator(s) ( SANCTIONED)	Title of the Research Projects/Scheme	Name of the Funding Agency	Duration of the Project/Scheme	Amount Sanctioned (Rs)	Major /Minor
1	Mr. Mahendra Waghmare	Synthesis and characterization of Nano ferrites	UGC	2015-17	4,70,000/-	Minor

17. Departmental projects funded by DST-FIST;UGC, DBT, ICSSR, etc. and total grants received :DST-FIST,UGC, DBT scheme.

Sr. No.	Name of the funding Agencies	Amount in Rs.
1.	Department of Biotechnology Government of India, Delhi	Rs. 11 Lakhs- for non recurring and Rs. 8 Lakhs for recurring in last four years
2.	DST FIST	Rs. 1,38,600/-
3.	UGC	Rs. 50,000 /-

List of projects funded by DBT, DST-FIST and UGC Scheme.

Sr. No.	Project Name
<b>DBT</b>	
1.	Determination of Refractive Indices of different liquid by Refractometer.
2.	Analysis of hearing loss of different age group peoples by Audiometer.
3.	Study of propagation and bending loss in Optical Fiber.
4.	Bicycle power Generator.
5.	Study of Antenna.
6.	Comparative study of different Sources of light by using Lux meter
7.	Study of Hysteresis loop of different magnetic materials.
8.	Study of mobile phone Radiations on egg, milk.

9	Simple water purity taster by capacitor.
10	Determination of velocity of Ultrasonic wave in different liquids by using Ultra sonic Interferometer.
<b>DST-FIST</b>	
1.	“Effect of different colors of light intensities on stridulation of Black cricket”
<b>UGC</b>	
1.	Study of absorption coefficient of Gamma Rays by using G. M. Counter.

18 Research Centre/facility recognized by the university : NA

19. Publications:

Name of the staff	Name of the Paper	Conference/Journal	ISSN number
Mrs. Varsha Joshi	Role of ICT in Higher Education’	conference proceeding (20-21 Feb 2015)	
Mrs. Varsha Joshi	Opportunities for using smart materials in Musical instruments	International conference on Functional Eco friendly Smart Emerging Materials at B. R. Gholap College, Sangvi, Pune	-
Mr. Akshay Vays	Thin Film Synthesis and its characterization	National Conference at Yashvantrao Mohite College	-

Name of the staff	Course	type	Name of the books	ISBN number
Mr. Mahendra Waghmare	T.Y. B. Sc.	Text book	Atomic and Molecular Physics	978-93-5158-378-3
Mr. Mahendra Waghmare	T.Y. B. Sc.	Text book	Nuclear physics	978-93-5158-488-9
Mr. Mahendra Waghmare	S.Y. B. Sc.	Text book	Oscillations, Waves and Sound	

20. Areas of consultancy and income generated :

Sr.No	Name of the faculty	Area of expertise
1	Mrs. Varsha Joshi	Acoustics
2	Mr. Mahendra Waghmare	Chemical and Electrical Industries
3	Mrs. Chhaya Abnave	Electronics and material science
4.	Mr. Pavan Surwase	Renewable Energy

21. Faculty as members in National / Inter National / Editorial Boards Board

Mrs. Varsha Joshi is a life member of

1. Acoustical Society of India
2. Indian Science Congress
3. Indian Physics association (Pune Chapter)

22. Student projects

a. Percentage of students who have done in house project including interdepartmental/programme.

Class	Percentage
F.Y.B.Sc.	75
S.Y.B.Sc	80
T.Y.B.Sc	100

b. Percentage of students placed for projects in organizations outside the institution i.e in research laboratories/industry/other agencies : **1-2 students per year**

Sr. No.	Project Name	Name of the institute
1.	Temperature monitoring system Using thermistor.	Indian Meteorological Department(IMD) ,Pune
2.	Study of Impact craters.	Khogolvishwa, Pune
3.	Estimation of temperature of sun surface.	Khogolvishwa, Pune
4.	Effect of light pollution of visibility of stars in Pune region.	Khogolvishwa, Pune
5.	Measurement of wind speed and wind direction.	Indian Meteorological Department(IMD) ,Pune
6.	Comparative study of Conventional and Modern X-Ray process.	Kotbagi hospital, Aundh pune.

23. Awards/Recognition received by faculty and students:

1. **Mrs. Varsha Joshi** :Award for "**Best Student Welfare Officer**" from Savitribai Phule Pune University. (2013-14)

2. **Mr. Akshay Vyas** : Participated in **National Conference** on "thin Film Synthesis and Characterisation" at Yashwantrao Mohite College, Pune in 2012 and Won **First Prize** in paper presentation

3. Ms. Ashiya Pathan student from T.Y.BSc participated in "**Avishkar**" Zonal level project competition, Pune district.

4 Mr. Sanjit Deokar, a student of T.Y.B.Sc. was selected to be a member of Pune University team for attending Interuniversity National Youth Leadership Camp organized by Association of Universities New Delhi at Gurunanak Dev University Amritsar from 7-11 August 2012. **He got second prize for Best Disciplined Team.**

5 Shubhangi Dhumal and Sonali Pawar of F.Y.B.Sc. got second prize in Project competition for their Digital clock from Fruit at college level. in 2012-13

6 Kalyani Bhat, Veersen Singh and Ajinkay Balwadkar students of F.Y.BSc. got first prize in poster "**Physics in Car**" at college level.

7 Manpreet Kaur and Clinton Singh students of F.Y.BSc won the first prize in model on "**Formation of sine wave by using simple pendulum**" at college level.

8 Prasad Shelar, Abhishek Waykar and Amol Walke students of F.Y.BSc won the second prize in model on "**Hydro Electric power station with turbine**" at college level.

9 Arti Kamble, Rushikesh Nigade and Randeer Dubey students of F.Y.BSc won the third prize in model on "**Hydraulic lift**" at college level.

10 Nachiket kortikar a student of S.Y.BSc won second prize in project competition on "**Intensity dilation due to magneto optical Rotation**" at college level.

24. List of eminent academicians and scientists/visitors to the department

Sr.No	Name of the Visiting Faculty	Designation	Institute
1	Dr. Sheila Mishra	Head, Department of Archaeology	Deccan College, Pune
2	Dr. K.C. Mohite	Dean of Science Faculty in SPPU	SPPU, Pune
3	Dr. Ram Takawale	Ex. Vice Chancellor of SPPU	SPPU, Pune.
4	Dr. Pandit Vidhyasagar	Former Head Department of Physics, SPPU, Pune	SPPU, Pune
5	Dr. Sanjay Dhole	Department of Physics, University of Pune	SPPU, Pune
6	Dr. P. S. Tambade	Associate Professor	Ramakrishna More College, Pune.

7	Dr. Vijay Labade	Assistant Professor	Fergusson College, Pune.
8	Mr. Mayuresh Prabhune.	Director	Khagol Vishva Austroclub, pune.
9	Dr. Supriya Patil	Assistant Professor	Garware College, Pune
10	Dr. Raka Dabhade	Associate Professor	Fergusson College, Pune.

25. Seminars / Conferences/ Workshops organized and source of funding

**For Staff >>**

- 1) Workshop in “**Laboratory Safety**” for laboratory Staff from various colleges under DBT-STAR college scheme funds .
- 2) Interdisciplinary Workshop on “**Labview-7 software**” for the teaching faculty, under DBT-STAR college scheme funds. for Electronics, Mathematics, Physics and Statistics

**For Students >>**

- 3) Workshop on “**Physics in Archaeology**” for the students under DBT star college scheme, sanctioned by Department of Biotechnology, Government of India
- 4) A hands on Training organized under DBT star college scheme for F.Y.Bsc & S.Y. B Sc students on “**Education Toys Making**”. at IUCAA, Pune University.
- 5) Workshop on “**Telescope and Amateur Astronomy**” for the students under DBT star college scheme.

26. Student profile programme / course wise:

Academic Year	Name of the Course/ programme (refer question no. 4)	Applications received	Selected	Enrolled		Pass percentage
				*M	*F	
2011-12	T. Y. B. Sc	07	07	02	05	100
2012-13	T. Y. B.Sc.	11	11	07	04	81.81



2013-14	T. Y. B.Sc.	10	10	05	05	40
2014-15	T.Y. B.Sc.	17	17	14	03	58.82

27. Diversity of Students in Last Five Years.

Name of the Course	% of students from the same state	% of students from other States
<b>F.Y. B. Sc</b>	96.66	3.33
<b>S.Y.B. Sc.</b>	96.51	5.69
<b>T.Y.B. Sc.</b>	97.79	5.49

28. How many students have cleared national and state competitive examinations such as NET , SLET , GATE, Civil services, Defense services ,etc.? : **01**

A Student of T .Y. B. Sc Sanjeet Devkar has passed **Intelligent bureau assistant central intelligence officer** grade 2 examination conducted by ministry of home affairs.

29. Student progression

Student progression	AGAINST % ENROLLED
UG to PG	75
PG to M. Phil.	-
PG to Ph.D.	-
Ph.D. to Post-Doctoral	-
<b>Employed</b>	
• Campus selection	<b>01</b>
• Other than campus recruitment	<b>53.33</b>

Entrepreneurship/ Self-employment	02 10 %
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30. Details of Infrastructural facilities

a) Library :-

Central Library Books	Departmental Books	Magazine
554	175	02

b) Internet facilities for Staff and Students :

3 computers and 1 Laptop and 1 printer

Internet – 09 Access point (Speed 500 KBPS , AIRCEL)

c) Class rooms with I CT facility : 02

Laboratories : 2 laboratories

Lab. Area – 118.71 sq. m.

**Major Instruments in the department**

Sr.No.	Name of the instruments
1	Polarimeter
2	Digital storage oscilloscope
3	Refractometer
4	Ultrasonic Interferometer
5	Fiber optics kit
6	Furnace

7	Two Probe method Apparatus
8	Geiger Muller Counter
9	Constant Deviation Spectrometer
10	LCR Q Meter

31. Number of students receiving financial assistance from college, University, Government or other agencies:  
students get various scholarships or free ships from government or other agencies.

Category	2011-12	2012-13	2013-14	2014-15	2015-16
<b>Scholar ship</b>					
SC	06	05	07	12	03
ST	02	01	-	-	-
OBC	-	02	06	11	05
SBC	-		01	03	02
VJNT	-	01	04	01	01
<b>Free ship</b>					
SC	01	01	-	03	-
OBC	-	01	03	-	02
VJNT	-	-	02	03	01

In addition the staff members give financial support to students for payment of fees.

32. Details on student enrichment programmes (special lectures/workshops / seminar) with external experts :

- One day workshop on 'Physics in Archaeology' was organized by department on 30<sup>th</sup> Jan 2015 under DBT star college scheme, sanctioned by Department of Biotechnology, Government of India.  
**Expert was Mrs. Sheila Mishra, Head department of Deccan College of Archaeology, Pune.**
- A guest lecture was organized under DBT star college scheme on 'Computer Simulation & Animation in Simple Harmonic Motion.'

**Expert: Dr. P. S. Tambade , Associate prof. , Ramakrishna More College, Pune.**

- Organized a one day workshop on ‘**Telescope and Amateur Astronomy**’ under DBT star college scheme, on Sunday 9<sup>th</sup> Feb, 2014
- A hands on Training was organized under DBT star college scheme for F.Y. Bsc & S.Y. Bsc students on “**Education Toys Making**” at **IUCAA, Pune University**.
- Lecture by Alumni..
- Industrial visit
- To develop an interest and to raise the knowledge of the students in the respective subject department organizes quiz competition, puzzles , cartoon making event etc.
- Guest Lectures :-
  1. Lecture was organized on 6<sup>th</sup> February 2013 by **Dr. Sanjay Dhole**, Reader, Department of Physics, University of Pune, Pune on ‘**Use of Nuclear Radiations for the Society**’.
  2. Lecture was organized under DBT star college scheme on ‘**Computer Simulation & Animation in Simple Harmonic Motion.**’ By Dr. P. S. Tambade for S.Y. Bsc & T.Y. Bsc Physics students on 23<sup>rd</sup> January, 2015.
- Special Sessions:-
  - Problem solving session
  - Training of handling special instruments.
  - To make friendship with an electrical circuit.
  - Component identification practice
  - Demonstration

33. Teaching methods adopted to improve student learning :

- Class discussion conducted by teacher
- Problem solving session – more understand subjective concept.
- Puzzle and Quiz- to increase the thinking power.
- Subject based Cartoon making and Rangoli
- Industrial visit and study tour
- Project discussions
- Use of videos clips
- Use of LCD Projector
- Physics subject and its concepts as a theme in Rangoli
- Assignment
- Exhibition- Anubhuti
- Use of coloured chalks for to understand there dimensional view and geometry.

34. Participation in Institutional Social Responsibility (ISR) and Extension activities

- T.Y. B Sc and S. Y. B Sc - A Social visit was arranged for students at “**Kamayani Vidyamandir**”, Pune for creating awareness about mentally challenged students.
- Financial help to the needy students by staff.
- Staff donate clothes, toys, books to needy childrens.
- Donation given to NAAM foundation.
- Election duties.
- One of the staff member done a survey during NSS camp on “ **Consumption of various energy resources by the villagers**”
- Participation in ‘Swachhata Abhiyan’

Name of the Staff	College Committee
Mrs. Varsha Joshi	Swarmadhuri, IQAC Advisor

Mr. Mahendra Waghmare	Prize Distribution, NSS, Reseervation cell
Mrs. Chhaya Abnave	Vidhyarthini Manch

35. SWOC analysis of the department future plans:

**Strengths :-**

1. Well-equipped laboratory with internet facility.
2. Good rapport with students.
3. Enthusiastic and hardworking faculty
4. Excellent Infrastructure.

**Weaknesses :-**

1. Industrial interaction.
2. Research activity for the students.
3. Collaboration with different Manufacturing industries.

**Opportunities :-**

1. Consultancy Services

**Challenges:-**

1. Fluctuating student strength

**Future Plans :**

- Improve Research activity of the department.
- Increasing use of ICT in teaching learning process
- Updating lab manuals.
- Starting B.Sc. Nanotechnology
- Offering Consultancy
- Arrange faculty development program
- Skill based short term courses.