

Adarsh Shikshan Sanstha Beed's

*Kalikaadevi Arts, Comm & Science College, Shirur
(K), Dist - Beed, Pin - 413249*



- DEPARTMENTAL PROFILE -

Submitted to

National Assessment & Accreditation Council

(ISO 2017-18)

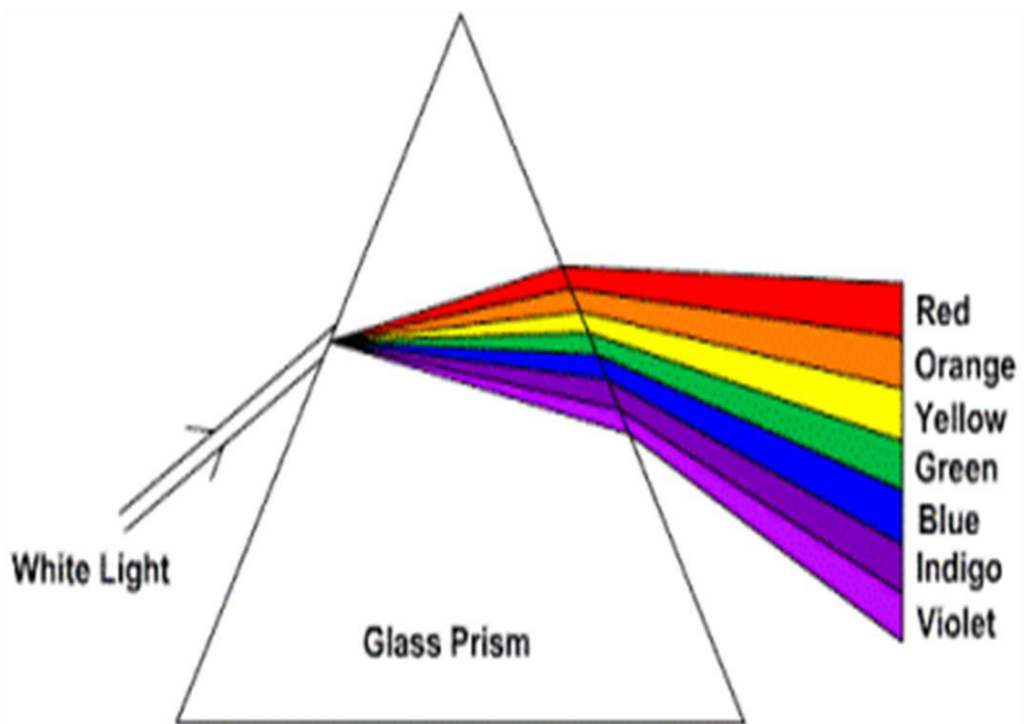
Submitted By

DR. SANJAY K. TUPE

Assistant Professor & Head

Department Of Physics

DEPARTMENT OF PHYSICS



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Introduction of department

The college is established in June 2002 with Arts and Commerce faculty. The Science faculty has been started in June 2004. The Physics Department at present has three senior college teachers, one is full-time & two on C.H.B. basis. The departmental laboratory is established in an area 80 Sq. meter.

Utilization:-

1. 20 sq. meters For Cabin & Computer Lab.
2. 60 sq. meters For General Physics & Electronics Experiments
3. 40 sq. meters For Darkroom & Store

In our lab sufficient practical instruments are available. For some experiments we bring the instruments from our mother institute which is well equipped & possess number of sets of the experiments.

Thirty students can work in the laboratories at a time. Seminar has arranged among students and discussions carried out on difficult topic. The output of discussion & seminars is found to be good.

AIMS AND OBJECTIVES

- ➡ To prepare the students for their bright career path by providing theoretical, experimental & computational physics knowledge.
- ➡ To develop the skills & values that will be useful in a wide range of careers.
- ➡ To improve skills of students in communications, personality, objectivity, critical thinking, & problem solving.
- ➡ To create research skills not sufficient for employment but for daily life in future.
- ➡ To encourage ability in the procedures & techniques through laboratory experiments.
- ➡ To develop an understanding of fundamental universe through the study of physics.
- ➡ To create awareness among students about different technological

Scope and importance of Physics - I

“Physics is defined as systematic and formulated Knowledge of any subject in the universe”.

Once we understand the basic concepts, we find that physics is the most simplest and interesting subject. But physics is a difficult and boring subject, if we do not know the basic concepts in it.

Physics is the broadest of the sciences. In the 18th century it was called natural philosophy. It is the description of “how the natural world / universe works”. Physics comprises astronomy, electronics, optics, thermodynamics, hydraulics, mechanics (statics and dynamics), atomic theory, cosmology, physical chemistry and other fields.

Some sciences like biology, organic and inorganic chemistry, botany, physiology etc. have physics at their base, although they are studied at a much higher level. Formerly called natural philosophy, physics is concerned with those aspects of nature, which can be understood in a fundamental way in terms of elementary principles and laws. In the course of time, various specialized sciences broke away from physics to form autonomous fields of investigation. In this process physics returned its original aim of understanding the structure of the natural world and explaining natural phenomena.

The most basic parts of physics are mechanics and field theory. Mechanics is concerned with the motion of particles or bodies under the action of given forces. The physics of fields is concerned with the origin, nature and properties of electromagnetic, nuclear and other force fields. Taken together mechanics and field theory constitute the most fundamental approach to an understanding of natural phenomena which science offers.

The ultimate aim is to understand all natural phenomena in these terms. See also classical field theory; Mechanics; Quantum field theory.

Scope and importance of nanotechnology

Nanotechnology is the field of science and technology which deals with the study of matter in nano range i.e. from 1nanometer to 100 nanometers. It is mostly concerned with developing and handling devices and materials in the nano range. It is considered to be the technology of future and is speculated to hold key to the major technological advances in the 21st century. Nanotechnology as a field is still in its early phase and there is a huge scope for research and advances in it.

Nanotechnology combines various branches of science like Physics, Chemistry Biology and Engineering. Presently it focused on design and production of extremely miniature electronic circuits and mechanical devices at nano range. It aspire the much fancied idea of handling and controlling matter at molecular and atomic level in future. Nanotechnology including information technology, electronics, medicine development and material production in forthcoming times. Though in many developed countries like USA it has been in research, for quite a few years in India it is still opening up in India it is in research phase and is mainly aimed at fields like electronics, medicine and other health products as well as industrial products.

But in future additional fields like agriculture, food industry, space research, communication and media, textiles will be impacted by nanotechnology.

Applications of Physics

The applications are classified according the field of Physics.

1. Classical Mechanics: Probably the closest to our daily experiences, classical mechanics finds many applications in industry as well as research. Mechanical design and automation in industry and simulation in research rely on principals of classical mechanics.
2. Electricity and Magnetism: Development in the knowledge of electricity and magnetism has revolutionaries the technological development in all fields of physics. The generator and motor designed using the phenomena of Electromagnetic induction are widely used machines. Technology and industry today depends largely on power. Knowledge of magnetism has helped us to build precise instruments and mechanical systems.

Physics in daily Life

Following actions in our daily life are parts of study of Physics.

1. When we walk or run, our motion is part of mechanics and thermodynamics.
2. We eat food which undergoes chemical reactions producing heat energy which is converted into mechanical energy.
3. Use of refrigerators, pressure cookers, washing machines, televisions, music systems, computers etc are all designed using the principles of physics.
4. When we speak, we produce sound properties of which like pitch and intensity are studied in physics.
5. Electricity that we used in household is a gift of physics.
6. Automobile design is biased on principles of physics. Driving an automobile is a perfect example of real world Physics. The engine must overcome the first law of motion by exerting the sufficient force on wheels to make the car to move. Without this force being applied, the car would stay at rest. This force causes a change in velocity (second law of motion). The law is explained by the road pushing the wheels in equal proportion to the wheels pushing the road.

Scopes and importance of the physics- II

The older, or classical, divisions of physics were biased on certain general classes of natural Phenomena to which the methods of physics had been found particularly applicable. The divisions are all still current, but many of them tend more and more to designate branches of physics are made in accordance with particular types of structures in nature with which each branch is concerned.

In every area physics is characterized not so much by its subject matter content as by the precision and depth of understanding which it seeks.

The aim of physics is the construction of a unified theoretical scheme in mathematical term whose structure and behavior duplicates that of the whole natural world in the most comprehensive manner possible where other sciences are content to describe and relate phenomenon in terms of restricted concepts peculiar to their own

disciplines, physics always seeks to understand same phenomena as a special manifestation of the underlying uniform structure of nature as a whole. In line with this objective, physics is characterized by accurate instrumentation, precision of measurement and the expression of its results in mathematical terms’.

For the major areas of physics and for additional listings of article in physics see also Acoustics; Atomic Physics; Biophysics; Classical Mechanics; Electricity; Electromagnetism; Elementary Particle; Fluid Mechanics; Heat; Low Temperature Physics; Molecular Physics; Nuclear Physics; Optics; Solid-State Physics; Statistical Mechanics.

Scopes and the importance of Nanotechnology:

For a carrier in nanotechnology background in physics chemistry and Mathematics is Necessary along with computer knowledge. As in India it is steel in its early phase, the career option are mainly available in research. But in future it is expected to get soon in development and marketing phase within few years. Many Indian companies and organizations having realized its imminence potential have opened up to it and are providing resources and opportunities for its research. Nano technology provides the great opportunity for growth and offers high remunerations.

There are jobs in government sector as well in privet sector. In Government sector a fresher with a Post Graduate Degree can expect remuneration in the range of at least Rs. 20,000 – 30,000. Depending on qualifications, institute of study and work experience remunerations can go even up to one lakh per month and even more! Besides remunerations a nanotechnology professional has great opportunities for international exposure. Degrees offered in Nano technology are mainly in Post Graduation like M. Tech, M. Sc. And also Ph. D. for engineering and sciencegraduates.

Teaching & Nonteaching Staff list of Department

No.	Name of the Faculty	Designation	Qualification
1	Dr. Tupe Sanjay Karbhari	Assistant Professor & Head	M.Sc., B.Ed., Ph. D
2	Mrs Shaikh I. A.	Assistant Professor (C.H.B.)	M.Sc.
3	Mr. Kale Pradeep	Assistant Professor (C.H.B.)	M.Sc.
4.	Mr. Kokate S. V.	Lab Assistant	B. A.
4	Mrs. Khedkar U. A.	Lab Attendant	H.S.C.

Workload Distribution

No.	Lecturer	Workload		Total Periods
		Theory	Practical	
1.	Dr. Tupe Sanjay K.	09	12	21
2.	Prof Kale P. B.	03	12	15
3.	Prof . Shaikh I. A.	06	12	18

Day	Class	9.10-10.00	10.00-10.50	10.50-11.40	12.30:3.00	3.00:5.20
Monday	F.Y.	-----	Dr. Tupe S. K	-----	Mr. Kale P. B.. Practical F.Y.	Mr. Kale P. B.. Practical F.Y.
	S.Y.	Mrs. Shaikh I. A.	-----	-----		
	T.Y.	-----	-----	Mr. Gholap N.A.		
Tuesday	F.Y.	-----	Dr. Tupe S. K	-----	Mr. Kale P. B.. Practical s F.Y.	Mr. Kale P. B.Practical F.Y.
	S.Y.	Mrs. Shaikh I. A.	-----	-----		
	T.Y.	-----	-----	Mr. Gholap N.A.		
Wednesday	F.Y.	-----	Dr. Tupe S. K	-----	Dr. Tupe S. K Practical T.Y.	Dr. Tupe S. K Practical T.Y.
	S.Y.	Mrs. Shaikh I. A.	-----	-----		
	T.Y.	-----	-----	Mr. Gholap N.A.		
Thursday	F.Y.	-----	Mr. Kale P. B.,	-----	Dr. Tupe S. K Practical T.Y.	Dr. Tupe S. K Practical T.Y.
	S.Y.	Dr. Tupe S. K	-----	-----		
	T.Y.	-----	-----	Dr. Tupe S. K		
Friday	F.Y.	-----	Mr. Kale P. B.	-----	Mrs. Shaikh I.A.. Practica S.Y.	Mrs. Shaikh I.A.. Practica S.Y.
	S.Y.	Dr. Tupe S. K	-----	-----		
	T.Y.	-----	-----	Dr. Tupe S. K		
Saturday	F.Y.	-----	Mr. Kale P. B.	-----	Mrs. Shaikh I.A.. Practica S.Y.	Mrs. Shaikh I. A.Practica S.Y.
	S.Y.	Dr. Tupe S. K	-----	-----		
	T.Y.	-----	-----	Dr. Tupe S. K		

1. Dr. Tupe Sanjay Karbhari

Faculty Memberships

- ▶ Fellow of IETE.
- ▶ Life member of ISCA.
- ▶ Life member of INDIAN ASSOCIATION OF PHYSICS TEACHERS.
- ▶ Life member of Akhil Bhartiya Natya Parishad, Branch Beed.

Faculty Achievements

- ▶ Worked as a In Charge Principle of the College.
- ▶ Now working as a vice Principle of the college.
- ▶ Published a Physics practical work book for HSC students.
- ▶ Published a Practical work book for F.Y.B.Sc. Students
- ▶ Worked on jury's panel of Science Exhibition local as well as district & state level exhibition .
- ▶ Worked as a JCS for different examinations of YCMU.
- ▶ Actor:- Principals Role in Movie "Chamatkar Saptasrungicha"
 - ▶ Presented Research Papers – 10
 - ▶ International Research Papers – 05
 - ▶ Participation in National Conference – 12
 - ▶ Participation in International Conference – 01
 - ▶ Participation in National Symposia – 01
 - ▶ Participation in Workshop -04
 - ▶ **Total----- =33**

Faculty Activities

- ▶ Invited as a chief guest for various activities indifferent colleges as well as society.
- ▶ Worked as External / Internal examiner in university practical examinations. Assess the B.Sc. theory Papers.
- ▶ Worked as a Chairman of seating scud.
- ▶ Worked as a member of redressal committee for B.Sc. Physics Examinations.
- ▶ Worked as Chairman of Infra Structure Committee, UGC Committee & Avishkar Committee in College.
- ▶ Worked as member of Admission Committee, garden Committee, Parches Committee, Science Exhibition Committee, Student Grahak Bhandar, Construction Committee etc. In College.
- ▶ Delivered a seven guest lectures.
- ▶ Ph. D. Supervisor in JJT University, Rajasthan.

1. Mrs. Shaikh I.A.

- ➡ She is working as a CHB teacher for Physics from Last year.
- ➡ She has attends practical workshop.
- ➡ She has attended some workshops on physics during her M.Sc.
- ➡ She is interested in practical work.

2. Mr. Kale Pradeep B.

- ➡ He is working as a CHB teacher for Physics from thisyear.
- ➡ He has attends practical workshop.
- ➡ He has attended some workshops on physics during her M.Sc.
- ➡ He is interested in practical work.

Students Achievements

- ➡ Student of our department Mr. Ashish Ajinath Kekakan has won second prize in University level Avishkar -2017. Selected for state level.

Learning Environment of the Department

For to maintain Interactive Learning environment,department arranges the various programmes.

1. For to increase the knowledge of the student guest lectures are arranged by our department.



Dr. Sayyad
S.B.

Milliya
College
Beed.

“Uses of e-
Learning in
Physics”



Prof
Kadam J.
Y.Balbhim
College
Beed.

“Basic
Electronics
& Nano
Physics”

2. Students regularly interact & discuss with the teachers.

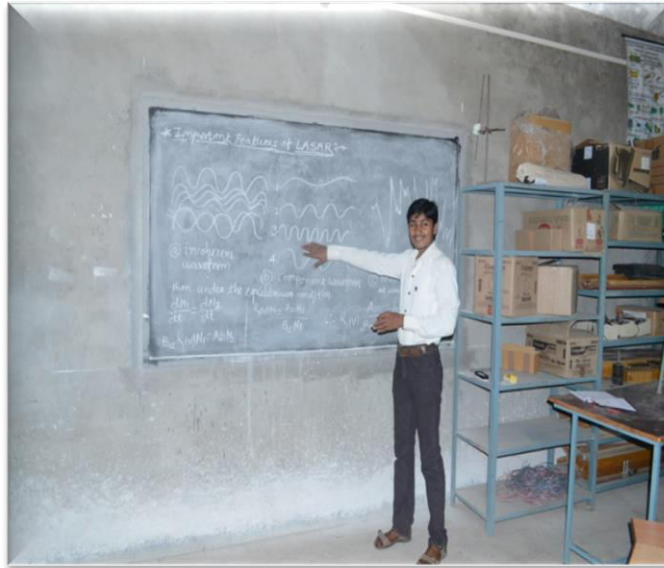


Prof Kakade S. M. in presence of me discuss with the student s of the department

3. Students are encouraged to prepare the Seminars on different topics of syllabus in the College.



F. Y. B. Sc. Student gives the seminar on the topic Kinetic theory of gases.



S. Y. B. Sc. Student gives the seminar on the topic "Important Features of LASER".



T. Y. B. Sc. Student gives the seminar on the topic "Wave Vector Relationship".

4. Students are encouraged to discuss among them on different topics of syllabus in the College.



B. Sc. Students Discuss on different topic of the subject, one by one.

5. Our department arranges the school college interaction programme.



6. Students prepare the wall papers on different topic.
7. Students collect the information from different media such as internet, Books & prepare the booklets.
8. As a regular activity students perform their practical work as per the curriculum.

9. Interactive learning tools are available in the department to make learning more effective & interesting such as slide projector, Telescope, Internet facility etc.
10. Students acquire knowledge of latest developments/technologies in the field of Physics & Electronics through the internet, e-Books and experts invited by the department.
11. Under the guidance of honorable principle students of the department participate in various programs organized by the college.



Educational tours/visits

Our students with faculties were organized study tours & visited wind energy project at kusalamba Tal. Patoda Dist. Beed on date 12th Aug., 2011. They get knowledge about Production of electrical energy from atmospheric freely flow of Wind Energy. They get the awareness of natural resources of energy & importance in human life.



*Students visit
to wind
power
project
kusalamb,
Tal- Patoda,
Dist - Beed*



*Students visit
to wind
power
project
Sautada,
Tal- Patoda,
Dist - Beed*

Evaluation

The students' performance is continuously monitored and evaluated through:

- ➡ Special practical sessions.
- ➡ Practical work.
- ➡ Individual & Classroom interactions.
- ➡ Problems & overcome them by research ability.

Books / Journals Available

➡ Main Library

➡ Books:- 201

➡ Journals:- 01

➡ Departmental Library

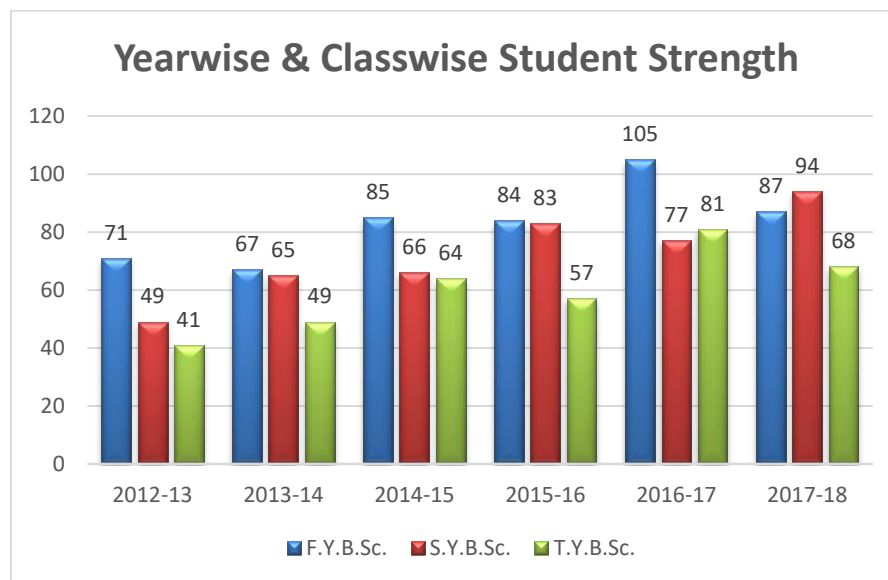
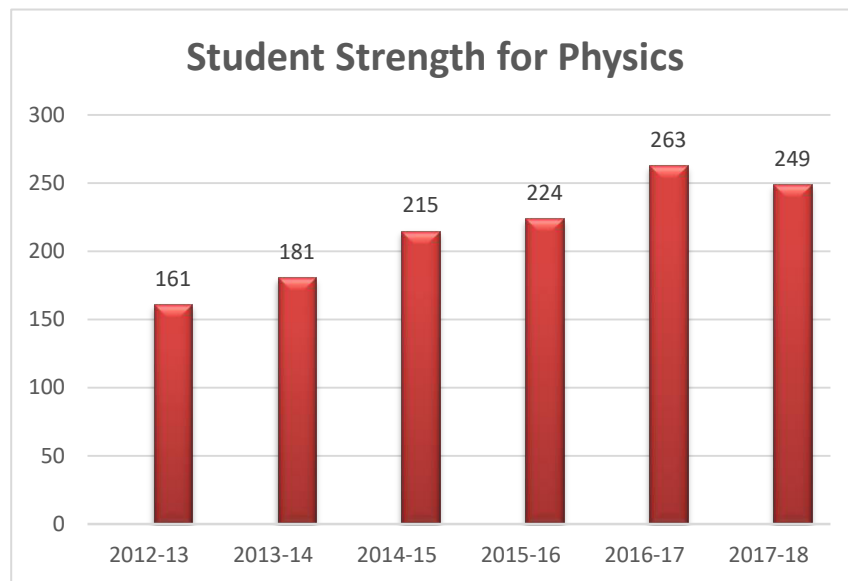
➡ Books:- 28

➡ E-Books:- 53

➡ Power point Presentation related to Syllabus:- 106

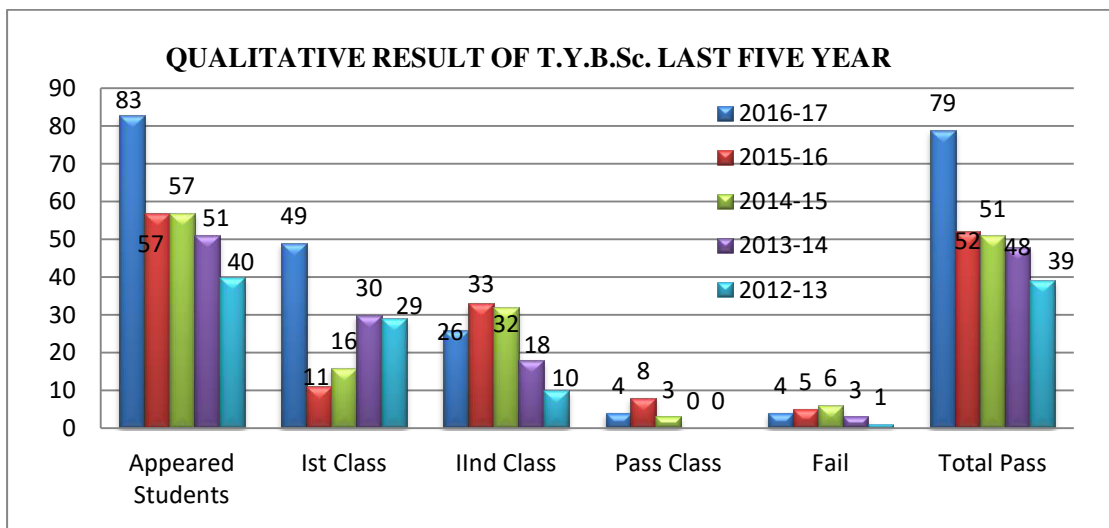
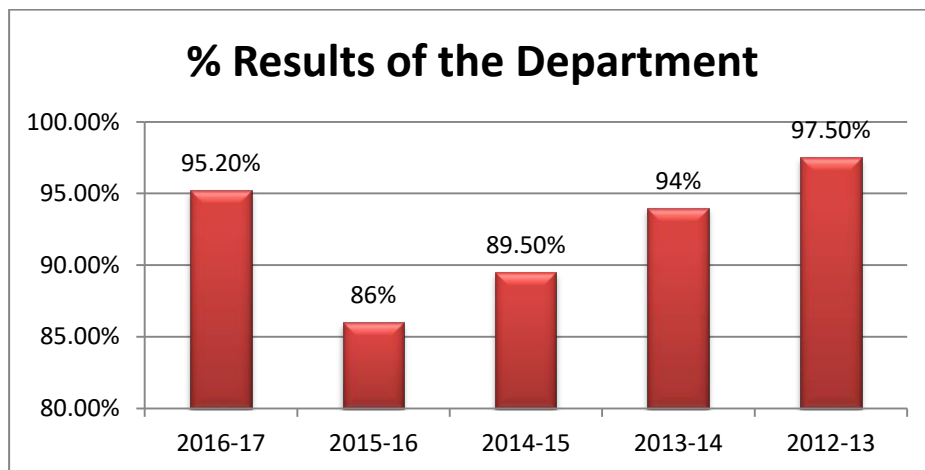
Student Strength

Year	Class	Total Studt			Open		O.B.C.		S.B.C.		N.T.		S.C.	
		Tot	M.	F.	M	F.	M	F	M	F	M	F	M	F
2012-13	F.Y.B.Sc.	71	50	21	17	07	05	03	01	-	26	10	01	01
	S.Y.B.Sc.	49	38	11	13	03	02	05	-	-	21	03	02	-
	T.Y.B.Sc.	41	37	04	17	03	04	-	-	-	15	01	01	-
	Total	161	125	36	47	13	11	08	01		62	14	04	01
2013-14	F.Y.B.Sc.	67	44	23	13	06	07	07	-	-	23	09	01	01
	S.Y.B.Sc.	65	45	20	14	06	03	04	-	-	27	09	01	01
	T.Y.B.Sc.	49	38	11	14	04	04	04	-	-	18	02	02	01
	Total	181	127	54	41	16	14	15	-	-	68	20	04	03
2014-15	F.Y.B.Sc.	85	48	37	13	15	04	06	-	-	26	15	05	01
	S.Y.B.Sc.	66	44	22	14	06	07	07	-	-	22	08	01	01
	T.Y.B.Sc.	64	44	20	13	06	03	03	-	-	27	10	01	01
	Total	215	136	79	40	27	14	16	-	-	75	33	07	03
2015-16	F.Y.B.Sc.	84	40	44	13	19	05	06	-	-	21	19	-	01
	S.Y.B.Sc.	83	42	41	11	17	02	06	-	-	26	18	03	-
	T.Y.B.Sc.	57	39	18	12	04	05	07	-	-	21	06	01	01
	Total	224	121	103	36	40	12	19	-	-	68	43	04	01
2016-17	F.Y.B.Sc.	105	69	36	43	18	06	04	-	-	18	14	02	-
	S.Y.B.Sc.	77	40	37	14	17	06	06	-	-	20	13	-	01
	T.Y.B.Sc.	81	45	41	11	16	03	05	-	-	27	15	04	-
	Total	263	154	114	68	51	15	15	-	-	65	42	06	01
2017-18	F.Y.B.Sc.	87	49	38	19	19	07	03	-	-	22	15	01	01
	S.Y.B.Sc.	94	59	35	42	15	03	03	-	-	13	17	01	-
	T.Y.B.Sc.	68	34	34	11	14	06	08	-	-	17	11	-	01
	Total	249	142	107	72	48	16	14	-	-	52	43	02	02



QUALITATIVE RESULT OF T.Y.B.Sc. LAST FIVE YEAR

Year	Appeared Students	I st Class	II nd Class	Pass Class	Fail	Total Pass	% of Passing
2016-17	83	49	26	04	04	79	95.2%
2015-16	57	11	33	08	05	52	86%
2014-15	57	16	32	03	06	51	89.5%
2013-14	51	30	18	--	03	48	94%
2012-13	40	29	10	--	01	39	97.5%



OPPORTUNITIES IN THE SUBJECT PHYSICS

Student of B. Sc. Physics has the opportunities in following fields

- 🌸 Students become qualified for the post graduate education in different branches of physics.
- 🌸 Knowledgeable students can get the opportunity in research section.
- 🌸 High School Teacher.
- 🌸 X – ray technician, ECG technician in Hospital.
- 🌸 Operator in wireless and telecommunication.
- 🌸 Digital Photographer.
- 🌸 Audio/Video system operator.
- 🌸 Energy system operator.
- 🌸 Instructor of MCVC.
- 🌸 Laboratory Assistant in Degree College.
- 🌸 Electronic media study teacher.
- 🌸 Machine operator in Pvt. Company.
- 🌸 Grapher in sonography, radar, satellite Communication.
- 🌸 Trainee technician in Nuclear Power Corporation.
- 🌸 In different industries they have opportunity of job as a quality control inspector.
- 🌸 In a defense, Army & Navy.

FUTURE PLAN

- To arrange School College interaction Programme.
- To submit minor / Major research project. (2019-20)
- To Organize Workshop on curriculum Needs. (2020-21)
- To increase the laboratory Instruments.(Yearly)
- Conduct the different examinations related to different organizations of Physics (as per available Schedule)
- Maintain the continuity & improve the research work.
- Yearly improve the number of books in department library.

Best Practices of Department

1. Department Provide the departmental library facility for the students of the department. In college hour.
2. The department arranges the guest lecturers on various topics for college students.
3. Department arrange the yearly tour. (Tour is not in curriculum)
4. The department arranges the student's seminars for to improve the confidence, stage daring & study computation among the students.
5. Our students publish the wall papers related to various topics of Physics.
6. Faculty of the department delivers the guest lecturers on various topics.

Extension Activities

Sr. No.	Date	Guest/ Guest Lecturer	Place	Topic
1.	9 th June 2011	Guest Lecturer	Milliya College Beed	“Electricity & Electrodynamics” Secondary School teacher district level Training Programme on revised Syllabus of science and technology.
2.	9 th June 2011	Guest Lecturer	Milliya Boys High School Beed	Electrostatics Basic
3.	24 th Jan 2012	Guest Lecturer	Pratisthan College, Paithan. Aurangabad.	“Semiconductors & Spice In Electronics” B.Sc. Students
4.	25 th Sept 2014	Guest Lecturer	Kalikadevi Jr.College Shirur (K) Dist- Beed	How to solve the problems In Physics
5.	5 th Feb 2015	Guest	Babhulwadi, Tal, Dist- Beed	“Jalsavnardhanasathi Yuva”
6.	6 th Feb 2015	Guest	PVP College Patoda, Dist - Beed	Swyamsevak & Shramdan
7.	2 nd Feb 2017	Guest Lecturer	KSK College Beed	Solar Photo Voltaic Cell

List of Alumni with present position

Sr. NO	Name of Alumni	Year of Passing	Designation	Venue
1.	Honrao Ganesh Sadashiv	March 2008	Jr. lecturer	Jr. College, Cinchpur
2.	Dhakane Tukaram Dinkar	March 2012	School Tec	Sant Bhagwanbaba Vidyalaya, Bavi.
3.	Pawar Gokul Vishwanath	March 2013	Journalist	Danik Punnya Nagari
4.	Kapre Pravin	March 2013	Bissness	Sai Dry Foods
5.	Jaybhaye Appso Ambadas	March 2013	Police	Nagpur City Police
6.	Dhakane Sachin Sharad	March 2013	School Tech	Sant Bhagwanbaba Vidyalaya, Bavi.
7.	Shaikh Intaj Anis	March 2014	Sr. Lecturer	Kalikadevi College Shirur (K)
8.	Zarkar Ashavni Rajendra	March 2014	School Tec.	Ideal English School Shirur (k)
9.	Raut Somnath Parmeshwer	March 2014	CISF	Central Industrial Security Force, Chennai
10	Funde Bhagwat Subhash	March 2015	CISF	Central Industrial Security Force, Chennai
11	Bargaje Dnyaneshwar Maruti	March 2016	ASTI	Asst. Income Tax Inspector, Mumbai
12	Khandagle Archana	March 2016	M.Sc. (edu.)	Dr. B.A.M. University, Aurangabad.
13	Bade haryashree Rajebndra	March 2017	M.Sc. (edu.)	Dr. B.A.M. University, Aurangabad.

