

## **Dr. Popat Savaleram Tambade**

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### **Member,**

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### **Educational Qualification :**

1. B. Sc. Physics (1989) : Pune University : First Class with distinction with **Third Rank** in Pune University.
2. M. Sc. Physics (1991): Pune University: First Class with specialization in Astrophysics
3. SET Physics (1995)
4. Ph. D. (2009) : Yashwantrao Chavan Open University, Nashik on Subject Communication (Physics)

### **Teaching Experience :**

25 years from 1992 at Undergraduate level.

12 years from 2004 at Postgraduate level.

Head of Department of Physics from 1/11/1997 to 1/3/2004.

### **Classes Taught :**

F. Y. B. Sc., S. Y. B. Sc., T. Y. B.Sc. M. Sc.

**Research :** Doing research in the field of Physics Education since 2004-05.

### **Research Projects :**

Completed one research project entitled '*Investigation of Computer Based Teaching Methods in Physics for Classroom Teaching*' funded by University of Pune in the period 2006-07 to 2008-09.

### Research Articles In Journals:

1. DR Shinde, **PS Tambade**, MG Chaskar, KM Gadave,(2017). Photocatalytic degradation of dyes in water by analytical reagent grades ZnO, TiO<sub>2</sub> and SnO<sub>2</sub>: a comparative study, Drinking Water Engineering and Science 10 (2), 109-117 .
2. DR Shinde, **PS Tambade**, KM Gadave, KS Pawar, M Naushad, (2017).Dye-sensitised solar cells with a naturally occurring pigment lycopene as a photosensitiser for zirconium dioxide: an experimental and theoretical study, Journal of Materials Science: Materials in Electronics 28 (15), 11311-11316.
3. RA Pawar, DR Shinde, **PS Tambade**, (2016). Synthesis of ZnO photocatalyst via ZnO<sub>2</sub> precursor and its application for dye degradation from effluent under solar irradiation, Desalination and Water Treatment 57 (35), 16514-16521.
4. D Shinde, **P Tambade**, H Pathan, K Gadave, (2017). Experimental and theoretical study of 1, 4-naphthoquinone based dye in dye-sensitized solar cells using ZnO photoanode, Materials Science-Poland 35 (4), 746-754.
5. **P. S. Tambade** (2011). Harmonic oscillator wave functions and probability density plots using spreadsheets. Latin American Journal of Physics Education, 5(1), 43-48.
6. P Tambade, (2015). Momentum representation of wave function in Quantum Harmonic Oscillator using spreadsheets, Physics Education 31 (1), 3.
7. **P Tambade**, S Aghav, (2014). Investigating Biological Effects of High Voltage Transmission Line on Human Health, Bionano Frontier 7 (2), 239-242.
8. **PS Tambade**,(2012). Visualizing superposition principle in Infinite Square well potential, Lat. Am. J. Phys. Educ. Vol 6 (3), 362.
9. **P. S. Tambade** (2011). Trajectory of Charged Particle in Combined Electric and Magnetic Fields Using Interactive Spreadsheets. European J. of Physics Education, 2(2), 49-59.
10. **P. S. Tambade** (2010). *“Effectiveness of Computer assisted Instructions and Cooperative Learning on Students’ Conceptual Understanding about Electrostatics.”* World Applied Science Journal, 10(12), 1432-1437.
11. **P. S. Tambade** and B. G. Wagh,(2007). *“Numerical Solution of two mutually perpendicular simple harmonic Motion: Lissajous Figures – A case Study”*, Physics Education, Vol-24(3).

12. **P. S. Tambade** and B. G. Wagh,(2010) “*Investigation of Students’ Understanding in Simple Harmonic Motion*” IAPT Bulletin, 2(3), 229-233.
13. **P. S. Tambade** (2009) “*Computer Simulations in Physics Teaching*” Shishkan Sankraman, July 2009.

**Paper presented in International Conference:**

1. **P. S. Tambade** and B. G. Wagh (2008), “*Investigating effect of Computer Simulations in Physics Teaching at Undergraduate Level.*” Paper presented in E-Learn 2008 – World Conference on E-Learning in Government, Corporate, Health care and Higher education held at Las Vegas, Nevada, USA from 17<sup>th</sup> Nov. to 21<sup>st</sup> Nov. 2008.  
  
(The same paper present on the website [www.editlib.org](http://www.editlib.org))
2. **P. S. Tambade** (2011). *Assessing the Effectiveness of Multimedia in Physics at Undergraduate Level.* Paper presented in International Educational Technology Conference 2011, Istanbul University, Istanbul, Turkey, 25-27 May 2011.
3. **V. D. Kulkarni** and **P. S. Tambade** (2011). *Effectiveness of Multimedia on Conceptual Understanding About Thermodynamics at Undergraduate Level.* Paper presented in International Educational Technology Conference 2011, Istanbul University, Istanbul, Turkey, 25-27 May 2011.

**Paper presented in National Conference:**

1. **P. S. Tambade** and B. G. Wagh. (2005). “*Simulation of Simple Pendulum on Computer and Study of its Characteristics.*” Paper presented in UGC sponsored National Symposium on Impact of Information Technology on Physics Education held at Bhubaneswar from 21<sup>st</sup> -23<sup>rd</sup> Oct 2005.
2. **P. S. Tambade** and B. G. Wagh. (2007). “*Investigation of Students’ understanding in Electrostatics.*” Paper presented in IAPT Convention Simla, Himachal Pradesh from 23<sup>rd</sup> – 25<sup>th</sup> Nov. 2007.
3. **P. S. Tambade** and V. D. Kulkarni (2010). “*Investigating Effectiveness of Computer assisted Instruction in Electrostatics* ” Paper accepted for presentation in 25<sup>th</sup> IAPT Convention, Saurashtra University, Rajkot, Gujrat from 21<sup>st</sup> Oct to 23<sup>rd</sup> Oct 2010.

**Awards/Honours :**

1. Received “**Outstanding Paper Award**” for the paper “*Investigating effect of Computer Simulations in Physics Teaching at Undergraduate Level*” presented in E-Learn 2008 – World Conference on E-Learning in Government, Corporate, Health care and Higher education held at Las Vegas, Nevada, USA from 21<sup>st</sup> Nov. to 25<sup>th</sup> Nov. 2008.
2. **Amrut Pratibha Award** for best Educational Services on the 75<sup>th</sup> Birthday of Hon. President Pratibha Patil from Amruta Pratibha Foundation.
3. **Dipastambha Award** for best Educational Services on 18<sup>th</sup> July 2010 by Sahakary Seva Sanstha, Manor, Dist- Thane : NGO working in the field of tribals in India.

**Books Published:**

Co-author of Following Text books published according to syllabi of Pune University

1. Mathematical Methods in Physics (T. Y. B. Sc.) (1998) – Nirali Prakashan, Pune.
2. Classical Electrodynamics (T. Y. B. Sc.)(1998) - Nirali Prakashan, Pune.
3. Physics – I (F. Y. B. Sc.) (2002) - Nirali Prakashan, Pune
4. Physics – I (F. Y. B. Sc.)(2002) - Nirali Prakashan, Pune
5. Oscillations, Waves and Sound (S. Y. B. Sc.) (2003) - Nirali Prakashan, Pune
6. Electricity and Magnetism (S. Y. B. Sc.) (2003) - Nirali Prakashan, Pune
7. Mathematical Physics (S. Y. B. Sc.) (2003) - Nirali Prakashan, Pune. (Revised Edition -2009)
8. Electronics (S. Y. B. Sc.) (2003) – Nirali Prakashan, Pune. (Revised Edition -2009)
9. Mathematical Methods in Physics (T. Y. B. Sc.) (2004) – Nirali Prakashan, Pune.(Revised Edition -2010)
10. Classical Electrodynamics (T. Y. B. Sc.) (2004) – Nirali Prakashan, Pune.(Revised Edition -2010)
11. Quantum Mechanics (T. Y. B. Sc.) (2004) – Nirali Prakashan, Pune.
12. Nuclear Physics (T. Y. B. Sc.) (2004) – Nirali Prakashan, Pune.
13. Solid State Physics (T. Y. B. Sc.) (2004) – Nirali Prakashan, Pune.
14. Computational Physics (T. Y. B. Sc.) (2004) – Nirali Prakashan, Pune.
15. Jigar's (MHT-CET) Physics (2007) – Pragati Prakashan, Pune. .(Revised Edition -2010)
16. All in One Physics –II (2008) – Nirali Prakashan, Pune.
17. Mechanics and Emerging Physics (F. Y. B. Sc.) (2008) - Nirali Prakashan, Pune.
18. Heat and Thermodynamics, electricity and Magnetism (F. Y. B. Sc.) - Nirali Prakashan, Pune.
19. Mathematical Methods in Physics (S. Y. B. Sc.) (2009) - Nirali Prakashan, Pune. (According to revised syllabus).
20. Electronics (S. Y. B. Sc.) (2009) - Nirali Prakashan, Pune. (According to revised syllabus).
21. Instrumentation (S. Y. B. Sc.) (2009) - Nirali Prakashan, Pune.
22. Oscillations, Waves and Sound (S. Y. B. Sc.) (2009) - Nirali Prakashan, Pune. (According to revised syllabus).
23. Optics (S. Y. B. Sc.) (2009) - Nirali Prakashan, Pune.

#### **Innovations in Curriculum design and transactions:**

1. University of Pune has appointed as Resource person in curriculum design for Physics at Undergraduate level. Taken active part in preparation of Syllabii of Pune University in Physics.
2. Developed diagnostic tests for students understanding in Oscillations, Electrostatics, Quantum Physics.
3. Developed Computer Simulations and animation packages on following topics
  - (1) Oscillations : Simple pendulum, spring mass system, damped oscillations, forced oscillations.
  - (2) Electricity and Magnetism : Coulomb's law, Gauss' law, electric dipole, dielectrics, diamagnetism, paramagnetism, ferromagnetism. Path of charged particle in electric and magnetic fields.
  - (3) Animation package on Doppler Effect.
  - (4) Thermodynamics : PV diagrams, Carnot Cycle, Diesel Engine, Otto engine
  - (5) Animation on solar system, projectile motion.
  - (6) Simulations in Quantum Mechanics : Harmonic Oscillator, Particle in one and three dimensional box, spherical harmonics.
  - (7) Optics : Lens system, aberrations.

4. Demonstrations in Physics : Following demonstrations are developed for physics teaching.
  - (1) Mini Van De Graff generator.
  - (2) Coulomb's law of electrostatic interaction.
  - (3) Eddy current damping.
  - (4) Electromagnetic brakes.
  - (5) Magnetic interaction.
  - (6) Magnetic field lines.
  - (7) Principle of D. C. motor.

**Resource Person :**

1. One day workshop on "Use of Computer Simulations and Information Technology for Physics Teaching at UG level" held on 18<sup>th</sup> Dec. 2008 organized by Arts, Commerce and Science College, Saikheda, Nashik.
2. One day workshop on "Computer Applications in F. Y. B. Sc. Chemistry Syllabus" held on 14<sup>th</sup> Sept. 2002 organized by Arts, Commerce and Science College, Akurdi, Pune.
3. One day seminar on "Impact of IT on Physics Education" organized by C. T. Bora College, Shirur, Pune.
4. One day workshop on "Teaching and learning of Physics by Co-operative and Participatory Approach" organized by Adv. M. N. Deshmukh ACS College, Rajur, Dist – Ahmednagar on 3<sup>rd</sup> Feb. 2007.
5. State level workshop on "Connectivity between University and the College through online Network for Virtual Classroom", 23-24 January 2009 organized by K. A. A. N. M. Sonawane ACS College, Satana, Nashik. Delivered talk on 'Pedagogical Content Knowledge and Virtual Classroom.'
6. Resource person in Teacher Training Program for Junior College Teachers at Shardabai Pawar College, Shardanagar, Baramati, Dist-Pune in May 2009.
7. One day workshop on "Framing the syllabus for T. Y. B. Sc. Physics", CT Bora College, Shirur, Pune on 12<sup>th</sup> Dec. 2009.
8. One day workshop on "Simulation Tools for Physics and Electronics" organized by Arts, Commerce and Science College, Saikheda, Nashik on 16<sup>th</sup> Feb. 2010.
9. Delivered lectures on physics in different colleges as guest lecture.
10. Delivered lecture on Use of Computers in Teaching in Refresher Course on Information and Technology.

**Seminars/Workshops attended:**

1. One day seminar on "Feedback and Guidelines Regarding Restructured Syllabus in the Physics ar S. Y. B. Sc." organized by B. J. A. C. S. College, Ale, Dist- Pune on 10<sup>th</sup> Oct. 2003.
2. One day workshop on "Restructuring of S. Y. B. Sc. Physics Syllabus" organized by Annasaheb Waghire College, Otur, Dist – Pune on 18<sup>th</sup> January 2003.
3. One day seminar on "Completion of Hundred Years of Discovery of Special Theory of Relativity" organized by Department of Physics, Annasaheb Waghire College, Otur, Dist- Pune on 7<sup>th</sup> March 2005.

4. One day workshop on “Innovative Teaching in Physics” organized by Baburaoji Gholap College, Sangvi, Pune on 15<sup>th</sup> Feb. 2001.
5. State level one day workshop on “Quality Education-NAAC Perspective” sponsored by NAAC on 2<sup>nd</sup> Feb. 2002 at V. G. Vaze College, Mumbai.
6. One day workshop on “The Process of Assessment and Accreditation of College by NAAC” organized by Annasaheb Magar College, Hadapsar, Pune.
7. One day workshop on “Framing the Syllabus of T. Y. B. Sc. Physics” organized by H. V. Desai College, Pune on 20<sup>th</sup> Sept. 1997.

**Community Services:**

Visited to villages for survey of energy conservation and counseling of energy conservation through NSS of the college.

Help is provided to the teachers to develop PowerPoint presentations for teaching.

Guided students and teachers for NET/SET examinations and students for Medical and engineering entrance tests.

Remedial coaching classes are arranged for SC/ST and minority students.

Help is provided for teachers and researchers in statistical analysis of their results.

**Memberships:**

Life Member of Indian Association of Physics Teachers.

Life Member of Parner Taluka Mitra Mandal – the social organization working in the field of social services.

**Computer Skills :**

Expertise in MS-Word, MS-Excel, MS-PowerPoint, C/C++ programming, Corel Draw, Visual Basic.