

# Dr. Alka V. Deshmukh, Ph. D. (Physics)

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## Present position

- Assistant Professor

## Contact Details (Mention e-mail) – fergusson.edu or despune.org



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## Work Experience

- Teaching: 12 years
- Research/Industrial: 12 years

## Personal Profile

I have been working as an Assistant Professor in Fergusson College (Autonomous) Pune since September 2012, where I have the opportunity to teach UG as well as PG classes. I am involved in various committees of the college. Presently I am the Coordinator for the B. Sc. course of Photography and Audio-Visual Production (Vocational). I am also a recognised research guide of SPPU and have one student who is pursuing her PhD in Materials Science.

## Course(s) Taught (Only Titles)

1. PHY1102: Heat and thermodynamics
2. PHY1202: Electricity and Magnetism
3. PHY1103: Physics practical laboratory-I
4. PHY1203: Physics practical laboratory-II
5. VPH2302: Acoustics and Sound for Media
6. PHY3506: Physics practical laboratory-I
7. PHY3507: Physics practical laboratory-II
8. PHY3508: Physics practical laboratory-III
9. PHY3606: Physics practical laboratory-IV
10. PHY3607: Physics practical laboratory-V
11. PHY3608: Physics practical laboratory-VI
12. PHY4201: Atoms, Molecules and Solids
13. PHY5301: Experimental Techniques in Physics
14. PHY5302: Solid State Physics
15. PHY5407: Physics project M.Sc. –II
16. Mechanics (I) and Heat and Thermodynamics (II) (F. Y. B. Sc. (University Pattern))
17. Instrumentation (S. Y. B. Sc. (University Pattern))
18. Elements of Materials Science (T. Y. B. Sc. (University Pattern))
19. Renewable Energy (T. Y. B. Sc. (University Pattern))
20. Materials Science (M. Sc. II (University Pattern))

## Field of Specialization/Areas of Interests

- Oxide Semiconductors,
- Dilute Magnetic Semiconductors,
- Thin films

## Education

- **Ph.D. – (Physics):** from 2004 to 2010  
**Title of the Thesis: Synthesis, Characterization and Investigation of Doped Oxides: ZnO and Manganites**  
**Name of University / Institution:** Department of Physics, University of Pune  
**Year of Award:** December, 2010
- **Master of Science- (Physics):** 2004  
Department of Physics, University of Pune
- **Bachelor of Science- (Physics):** 2002  
Fergusson College, Pune, University of Pune, Pune

## Fellowship/Awards/ Certifications/Achievements/Recognitions

1. Recognized guide in Physics for M.Phil. and Ph.D. degree with Savitribai Phule Pune University from year 2018 to 2026.
2. Recognition as Permanent Post-Graduate (PG) Teacher of Savitribai Phule Pune University, Pune
3. Senior Research Fellow, Department of Physics, University of Pune (October 2006-2009)
4. Junior Research Fellow, Department of Physics, University of Pune (October 2004-2006)

## Member of College Committees/ Professional Bodies and Others

College Level	Professional Bodies	Others
● Central Timetable Committee	● Indian Association of Physics Teachers (IAPT)	● Member BOS Physics, Fergusson College (Autonomous), Pune ● DBT-Star College scheme (Departmental coordinator) ● D-IQAC member ● Department website incharge
● College Exam Committee		
● Coordinator, B. Sc. (Photography and Audio Visual Production (Vocational)) course		
● F. Y. B. Sc. (Physics Practical Incharge (2015-2021)) ● F. Y. B. Sc. Admission Committee (2013-2018) ● Feedback committee (2013-2021)		

## Employment History

- 1) **Organization** : College of Engineering, Pune  
**Role** : Assistant Professor  
**Duration** : July 2010 to September, 2012
- 2) **Organization** : Fergusson College (Autonomous), Pune  
**Role** : Assistant Professor  
**Duration** : September, 2012 till date

## Research Publications in National and International Journals

1. Structural, Compositional and Luminescence Studies of  $\text{Y}_2\text{O}_3:\text{Eu}^{3+}$  Nanophosphor Synthesized by Sol-Gel Method  
Prashant M. Kakade, Avinash R. Kachere, P. D. Sahare, **Alka V. Deshmukh**, S. D. Dhole, Sandesh R. Jadhkar, Nandkumar T. Mandlik  
*Journal of Alloys and Compounds*, **928**, 167106 (2022)
2. Electron transport behavior and charge ordering phenomena in  $\text{La}_{0.5}\text{Ca}_{0.5}\text{MnO}_3$   
Shankar S. Kekade, Rupesh S. Devan, **Alka V. Deshmukh**, D. M. Phase, R. J. Choudhary, Shankar I. Patil  
*Journal of Alloys and Compounds*, **682**, 447-453 (2016)
3. Role of Al doping in structural, microstructural, electrical and optical characteristics of as deposited and annealed ZnO thin films  
Shashikant D. Shinde, S. K. Date, **Alka V. Deshmukh**, Amit Das, Pankaj Misra, L. M. Kukreja and K. P. Adhi  
*RSC Adv.*, **5**, 24178–24187 (2015)
4. Role of grain size on the magnetic properties of  $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$   
P. A. Yadav, **A. V. Deshmukh**, K. P. Adhi, B. B. Kale, N. Basavaih, S. I. Patil  
*J. Mag. Mag. Mat.*, **328**, 86-90 (2013)
5. Effect of Ga doping on micro/structural, electrical and optical properties of pulsed laser deposited ZnO thin films  
S. D. Shinde, **A. V. Deshmukh**, S. K. Date, V. G. Sathe, K. P. Adhi  
*Thin Solid Films*, **520**, 1212 (2011)
6. Effect of Al or Bi on the properties of PLD grown  $\text{Zn}_{0.95}\text{Mn}_{0.05}\text{O}$  thin films  
**Alka V. Deshmukh**, K. P. Adhi and S. I. Patil  
*Optics: Phenomena, Materials, Devices, and Characterization*, *AIP Conf. Proc.* **1391**, 508-510 (2011);  
doi: 10.1063/1.3643593
7. Structural, chemical and magnetic investigations of polycrystalline  $\text{Zn}_{1-x}\text{Mn}_x\text{O}$   
**Alka V. Deshmukh**, S. I. Patil, S. M. Yusuf, A. K. Rajarajan, N. P. Lalla  
*J. Magn. Magn. Mater.*, **322**, 536-541 (2010)
8. Effect of iron doping on electrical, electronic and magnetic properties of  $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$   
**Alka V. Deshmukh**, S. I. Patil, S. M. Bhagat, P. R. Sagdeo, R. J. Choudhary and D. M. Phase  
*J. Phys. D: Appl. Phys.*, **42**, 185410 (5 pages) (2009)
9. Swift ion irradiation induced changes in the structural and transport properties of  $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$  thin films  
M. S. Sahasrabudhe, K. P. Adhi, S. S. Harchirkar, **A. V. Deshmukh**, S. I. Patil and Ravi Kumar  
*Nucl. Instr. and Meth. B*, **244**, 333-337 (2006)

## Participation in Conferences/Seminars/Symposia/Workshop:

1. Frontiers in Physics–XV organized by Astro Club, Department of Physics, Fergusson College, Pune, 12-13 May, 2022 (Participation)
2. One-day interaction program - **Science Adda** under the aegis of ‘Azadi ka Amrit Mahotsav’. Several departments of college have participated in this activity and interacted with school children through live streaming on MS teams. Dr. R. V. Dabhade and Dr. Alka V. Deshmukh gave presentations on ‘History of Physics’ and ‘Optical Phenomena’ respectively. Virtual tour of the Physics Museum and Laboratories was also presented.
3. RUSA Sponsored International Webinar on Frontiers in Experimental Physics (IWFEF-2020) organized by the Department of Physics, Farook College (Autonomous), Kozhikode, Kerala during 5-6, August 2020 (Participation)
4. Frontiers in Physics–XII organized by Astro Club, Department of Physics, Fergusson College, Pune, 1-2 February, 2018 (Participation)

5. Frontiers in Physics-XI organized by Astro Club, Department of Physics, Fergusson College, Pune, 23-25 January, 2018 (Participation)
6. Exchange program for teaching and non-teaching staff at IISER, Pune, organized by IISER, Pune on 19<sup>th</sup> January, 2018 (Participation)
7. One-day awareness-cum-training workshop on ECBC organized by Maharashtra Energy Development Agency (MEDA) on 16<sup>th</sup> January, 2018 (Participation)
8. Frontiers in Physics-X organized by Astro Club, Department of Physics, Fergusson College, Pune, 3-5 February, 2017 (Participation)
9. Three-day Faculty Development Program on Linux Awareness organized under DBT Star College Scheme, Department of Biotechnology, Ministry of Science and Technology, Govt. of India, New Delhi, 23-26 November, 2016 (Participation)
10. Frontiers in Physics-IX organized by Astro Club, Department of Physics, Fergusson College, Pune, 19-20 January, 2016 (Participation)
11. Science Academies Lecture Workshop on Nanotechnology: Energy and Health, organized by D. E. Society's Fergusson College, Pune, Indian Academy of Sciences, Bangalore, Indian National Science Academy, New Delhi, The National Academy of Sciences, Allahabad, 10-11 October, 2014 (Participation)
12. Frontiers in Physics-VII Astronomy Frontiers organized by Astro Club, Department of Physics, Fergusson College, Pune, 21-23 January, 2014 (Participation)
13. Refresher cum Orientation course "Experimental Techniques in Physics (PHY-UT-603), Department of Physics, University of Pune (SPPU) , 17/12/2013- 22/12/2013
14. Two Days Interaction Meeting on Photoelectron Spectroscopy organized by Raja Ramanna Centre for Advanced Technology, Indore, 29-30 August, 2013 (Oral Presentation)
15. One Day "Workshop on Revision of M. Sc. I Physics syllabus (credit system)" organized by University of Pune (SPPU) and Department of Physics, Fergusson College, Pune, 5th March, 2013 (Participation)
16. Raman Memorial Conference 2013 organized by Department of Physics, University of Pune (SPPU), 22-23 February, 2013 (Participation)
17. Vedic Science Day organized by Department of Biotechnology, Fergusson College, Pune, Forum for Research in Oriental Sciences & Technology (F.R.O.S.T.), Pradnya Vikas Shikshan Sanstha, Pune, 10-11 January, 2013 (Participation)
18. Teachers Training Program organized by D. E. Society's Fergusson College, Pune under UGC-CPE: Model for Arts and Science Teachers (M. A. S. T.) program, 18-25 October, 2012 (Participation)

### Events Organized/Coordinated:

Sr. No.	Name of the Event	Name of organizing Institute/ College/University	Nature of contribution	Dates
1	National Conference on Ancient Science and Technology: Retrospection and Aspirations (ASTRA-2015)	D. E. Society's Fergusson College, Pune	Member, Local Organizing Committee	10 <sup>th</sup> & 11 <sup>th</sup> January, 2015

2	National Conference on Advanced Materials and Applications (NCAMA-2016)	Department of Physics, Fergusson College with the support from BCUD, Savitribai Phule Pune University and Department of Biotechnology (DBT), Govt. of India	Member, Local Organizing Committee	4 <sup>th</sup> & 5 <sup>th</sup> March 2016
3	5 <sup>th</sup> Bharatiya Vigyan Sammelan	Vijnana Bharati and Govt. of Maharashtra	Member, Local Organizing Committee	11 <sup>th</sup> to 14 <sup>th</sup> May, 2017
4	Live event on 'National Education Policy' an IQAC initiative	IQAC, Fergusson College (Autonomous), Pune	Coordinator	5 <sup>th</sup> September, 2020
5.	National Seminar on Implementation of Multi and Trans-Disciplinary Education under NEP 2020 under UGC STRIDE component - I	D. E. Society's Fergusson College, Pune	Member, Local Organizing Committee	18 <sup>th</sup> to 20 <sup>th</sup> January, 2023

### Additional skills/Activities

#### Orientation and Refresher Courses and Developmental activities attended:

1. Refresher cum Orientation Course Experimental Techniques in Physics (PHY-UT-603) organized by Department of Physics, Savitribai Phule Pune University, during the period from 17<sup>th</sup> December, 2013 to 22<sup>nd</sup> December, 2013.
2. 159 Orientation Programme organised by the Academic Staff College, Savitribai Phule Pune University, during the period from 1<sup>st</sup> October to 28<sup>th</sup> October, 2015.
3. Refresher Course in Physical Sciences organized by the Human Resource Development Centre (HRDC), Punjabi University, Patiala, during the period from 20<sup>th</sup> June to 9<sup>th</sup> July, 2016.
4. 'Science Academies' Refresher Course on "Experimental Physics" at Maharani Lakshmi Ammanni College for Women, from 23<sup>rd</sup> November to 8<sup>th</sup> December 2018, sponsored by Indian Academy of Sciences, Bengaluru, Indian National Science Academy, New Delhi and The National Academy of Sciences India, Allahabad.
5. Short term Faculty Development Programme of Ten days duration titled 'Instrumentation Techniques for Nanomaterials (Physics)' conducted at the Department of Instrumentation Science, Savitribai Phule Pune University, from 20<sup>th</sup> June to 29<sup>th</sup> June, 2019 under the scheme of Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching.
6. LIC member for renewal of Ph. D. Research centre at UGC-DAE, CSR, Mumbai centre (18<sup>th</sup> December, 2018).
7. Delivered an invited talk - Journey into Magnetism, for UG students at Vellalar College for Women (Autonomous), Erode-12 through Google Meet on 16<sup>th</sup> March, 2021, under the DBT- Star college scheme.
8. 'Learning Physics Through Simple Experiments' organized by IIT Kanpur between 2<sup>nd</sup> April to 10<sup>th</sup> June, 2020
9. Five Days Online Faculty Development Programme on MOODLE-LEARNING MANAGEMENT SYSTEM organized by IQAC, Department of Information Technology and Computer Science, Saket College of Arts, Science and Commerce, Kalyan in association with IIT Bombay Spoken-Tutorial 10<sup>th</sup> May to 14<sup>th</sup> May, 2020

10. One Week National Online Faculty Development Program on ICT Tools for Effective Teaching Learning, organized by School of Mathematical Sciences, Swami Ramanand Teerth Marathwada University, Nanded between 11<sup>th</sup> to 16<sup>th</sup> May, 2020
11. 'Classical Electromagnetism - 1 (Electrostatics)' organized by IIT Kanpur between 15<sup>th</sup> August to 13<sup>th</sup> December, 2020
12. Delivered Lectures on 'Spectroscopic Techniques' (Course 3: 003B: Advanced Experimental Physics) of the Ph.D. course work in Physics conducted at Research Center in Physics, Ahmednagar College, Ahmednagar.

### Course Content Developed (e-content)

Sr. No.	Classes	Description of the activity	Year
1.	F.Y. B.Sc.	Conducted lectures on Microsoft Teams, prepared PPTs, shared Videos, notes. Prepared MCQ question bank, designed and conducted online internal and end semester examination for following subjects of F. Y. B. Sc. PHY1102 Heat and Thermodynamics PHY1202 Electricity and Magnetism PHY1103 Physics Practical – I PHY1203 Physics Practical – II	2016-2017 2019-2020
2.	S.Y. B. Sc.	Conducted lectures on Microsoft Teams, prepared PPTs, shared Videos, notes. Prepared MCQ question bank, designed and conducted online internal and end semester examination for the following subject of S.Y. B. Sc. 1. VPH2302 Acoustics and sound for media	2017-2018
3.	T. Y. B. Sc.	Prepared PPTs and shared videos for T. Y. B. Sc. Physics practicals allotted.	2019-2020
4.	M. Sc. I	Prepared MCQ question bank, designed and conducted online internal and end semester examination for following subjects of M. Sc. I 1. PHY4201 Atoms, molecules and solids 2. PHY4202 Solid State Physics	2017-2018 2019-2020
5.	M. Sc. II	Conducted lectures on Microsoft Teams, prepared PPTs, shared Videos, notes. Prepared MCQ question bank, designed and conducted online internal and end semester examination for M. Sc. II 1. PHY5301 Experimental Techniques in Physics 2. PHY5302 Solid State Physics	2019-2020 2020-2021

### Consultancy Services

1. Worked with KPIT Pune for selection of innovative projects for startups.