

# CURRICULUM – VITAE

## Dr. Kamal Devlal

Associate Professor and Head, Department of Physics

School of Sciences, Uttarakhand Open University

Haldwani (Nainital) 263139 Uttarakhand

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Mob: 9411525595, 8791477949

## PERSONAL DETAILS:

**Father's Name** : Shri. K.D. Devlal

**Date of Birth** : December 1, 1977

**Language Known** : Hindi and English

**Corresponding Address** : Dr. Kamal Devlal

: House No. 1427, Sector IV, Shastri Enclave (Ta colony)

Pantnagar, District: U S Nagar, Uttarakhand-263145

**Permanent Address** : Bajeti, Pithoragarh, Uttarakhand-262502

## Academic Pursuits:

Examination	Yr. of passing	Institute/Board	Division	Subjects
High School	1993	U.P. Board	Ist	Science stream
Intermediate	1995	U.P. Board	Ist	Mathematics stream
B.Sc.	1998	Kumaon University, Nainital	2nd	Physics, Mathematics, Chemistry
M.Sc. Physics	2002	G.B.P.U.A. & T., Pantnagar	Ist	Specialization in Digital Electronics
Ph.D. Physics	2005	G.B.P.U.A. & T., Pantnagar	-	Major- Physics Minor – Computer Science

## Experience:

Organization	Designation	Period (From To)	Total Years	Job Duties
M D University (G.I.T.M., Gurgaon)	Lecturer	13.08.05 to 21.08.06	1 year	Teaching and research
G.G.S. Indraprastha University (M.S.I.T. N.Delhi)	Assistant Professor	21.08.06 to 31.11.12	6 years, 3 months	Teaching and research
Uttarakhand Open University, Haldwani	Senior Academic Consultant/ Academic Associate	03.12.12 to 18.7.2014	1 year 7 months	Program coordination of B.Sc. /M.Sc. and other Academic responsibilities
Uttarakhand Open University, Haldwani	Assistant Professor	19.7.2014 to 6.9.2019	7 years 5 months	do
Uttarakhand Open University, Haldwani	Associate Professor	7.9.2019 to till date	5 years	do

**Total academic/Teaching experience 19 Years and 1 months.**

### **Other Administrative responsibilities**

1. Member for Syllabus committee of Physics in I.P. University, New Delhi.
2. Programme coordinator / Head of Physics Department (From 2014 to till date).
3. Member, Board of studies, Department of Physics, Uttarakhand Open University (From 2014 to till date).
4. Member, Planning Board, Uttarakhand Open University (From 2023 to till date).
5. Assistant Controller of examination at Uttarakhand Open University, Haldwani
6. Nodal Office of 120 kW Solar power Plant at Uttarakhand Open University, Haldwani
7. Assistant Director Academics at Uttarakhand Open University, Haldwani
8. Nodal Office of UCOST for Nainital district.

### **Area of Research:**

#### **M. Sc. 'Physics': (Research work)**

**Thesis Title:** Electrical properties of CdS dispersed ammonium alum composite solid electrolyte.

#### **Ph.D. 'Physics': (Research work)**

**Thesis Title:** Study of thermophysical properties of different class of solids under high pressure and high temperature.

**Specific area of research:** Condensed Matter Physics, Material Science, Organics NLO.

**Scholarship Awarded:** Graduate teaching assistance ship during M.Sc.  
University merit scholarship during Ph.D.

**Computer knowledge:** Minor in computer science, FORTRAN, C, C++, Working of microprocessors, Operating system, MS, Windows XP, Adobe Page Maker, Photoshop, MOOCs Gaussian, Gauss view, AutodockVina, Gromac's. Crystal explorer.

**Extracurricular Activities:** ☐ Served as Vice-president of P.G. Society during 2002-2003 in University.  
☐ NCC during Graduation (1995-1998)

### **Membership:**

Life member of the Indian Association of Physics Teachers, Kalyanpur, Kanpur, India.

### **Awards:**

Warded best paper presentation for research paper in "International Conference in Functional Material and its Application Aspects", organized by Department of Physics, Institute of Sciences and Humanity, SIMATS Engineering and Saveetha Institute on Medical and Technical Sciences, Chennai, Tamil Nado, 7-8 September 2023.

### Unit Writing (Chapter in Books):

S. No.	Course name and code	Chapter /Unit name	Number of Units
1	Mechanics BSCPH101	Vector	1
2	Mechanics BSCPH101	Vector calculus	1
3	Mechanics BSCPH101	Gauss and Greens Theorems	1
4	Experimental Physics BSCPH104		3
5	Optics BSCPH202	Interference of Light	1
6	Optics BSCPH202	Interference in thin films	1
7	Optics BSCPH202	Interferometers	1
8	Elements of Quantum Mechanics and relativity BSCPH301	Relativity	1
9	Modern Physics BSCPH302	Raman Spectra	1
10	Elementary Solid State Physics BSCPH203	Super conductivity	1
11	Mathematical Physics MSCPH501	Vector	1
13	Spectroscopy MSCPH501	X ray Spectra	1
14	Spectroscopy MSCPH501	Raman Spectra	1
15	Condensed matter Physics MSCPH501	12 unit	12
16	Experimental Physics MSCPH523	GM Counter	1
17	Experimental Physics MSCPH523	Flip Flop	1
18	Material Science MSCPH552	5 units	5
19	Optoelectronics MSCPH551	LED	1
20	Introductory Physics (Code PHYNGE)	Unit 5 (Simple Harmonic Motion) and unit 6 Wave Motion	2
21	Renewable Energy	Unit 1 (Energy Scenario), Unit 2 (Solar radiation )	2
	Total		<b>37</b>

### Books Edited:

S. No.	Course name and code	Publisher	Level
1	Experimental Physics BSCPH104	Uttarakhand Open University	UG
2	Experimental Physics BSCPH104	Do	UG
3	Experimental Physics BSCPH104	Do	UG
4	Quantum MechanicsMSCPH502	Do	PG
5	Classical MechanicsMSCPH503	Do	PG
6	Statistical MechanicsMSCPH504	Do	PG
7	Experimental Physics IMSCPH505	Do	PG
8	Experimental Physics IIMSCPH510	Do	PG
9	*Digital electronics and Communication System MSCPH521	Do	PG
10	Material ScienceMSCPH552	Do	PG
	Total		9

**Details of Projects under implementation:**

S. No	Title	Cost in Lakh	Duration	Role as PI/Co-PI	Agency
1	Synthesis and Characterization of 7-Diethylamino-4-methyl coumarin as the photosensitizer for highly efficient dye-sensitized solar cell	-	1 year	PI	IIT Delhi, under Indian Nanoelectronics User Program Idea to Innovation (INUP- i2i)
2	A Multistage <i>in-silico</i> Identification and Application of Natural Potential Inhibitors of Uttarakhand Region Against Different Diseases	Rs.1.25 lakh	1 year	Co-PI	Uttarakhand State Council for Science and Technology (UCOST)
3.	Synthesis and Characterization of Organic Nonlinear Optical Materials for Different Optoelectronic Applications	Rs.3.73 Lakh	2 Years	Co-PI	Uttarakhand Science Education and Research Center (USERC)
4.	Synthesis and characterization of carbon quantum dots for enhancing the efficiency of the Photovoltaic devices	Rs.8 .0 Lakhs	2 Years	PI	Uttarakhand State Council for Science and Technology (UCOST)

**Research projects (Submitted):**

1. Laboratory establishment Proposal of amount Rs. 1,87,00000 Submitted to DST scheme under Fund for Improvement of S&T Infrastructure in Universities and Higher Educational Institutions(FIST) 2023

## List of publications

1. **Kamal Devlal**, U.C. Johari, N. Shrivastva and B. Bhattacharya; “Electrical properties of CdS dispersed ammonium alum composite solid electrolyte”; *Indian J. of Phys.* 79(ii), 127578 (2005). (Journal Status International, ISSN No. 0973-1458)
  2. **Kamal Devlal** and C.S. Patni, “Photoacoustic spectroscopy: a technique to study plant-pathogen interaction”; *Indian J. of Phys.* 79(6), 591-595 (2005). (Journal Status International, ISSN No. 0973-1458)
  3. **Kamal Devlal**, and KuldeepKholiya, “Analysis of equation of state for inert gas solids and metals”; *Indian J. of Phys.* 80(8), 801-805 (2006) (Journal Status International, ISSN No. 0973-1458)
  4. **Kamal Devlal** and B.R.K. Gupta; “Equation of State for Inert Gas Solids”; *Pramana : Indian J. of Phys.* 69 No 2,307-312 (2007). (Journal Status International, ISSN No. 0304-4289)
  5. **Kamal Devlal** “Analysis of Equation of State for Semiconductors”; *Journal of Engineering, Computers & Applied Sciences (JEC&AS) Volume 2, No.7, ( 2013)* (Journal Status national, (ISSN No: 2319-5606)
  6. **Kamal Devlal** “High Pressure and High Temperature Equation of State for Metals”; *Journal of Engineering, Computers & Applied Sciences (JEC&AS) Volume 2, No.8, ( 2013)* (Journal Status national, (ISSN No: 2319-5606).
  7. **Kamal Devlal**, Mahipal Singh, “POWER SERIES ANALYSIS OF EQUATION OF STATE FOR NANOMATERIALS” *International Journal of Advance Research in Science & Engineering* (ISSN 2319-8354), Volume 04, Issue 07, July 2015.
  8. Madan Singh, KopangKhotsoHlabanaa, Sanjay Singhal, **Kamal Devlal**, “Grain-size effects on the thermal conductivity of nanosolid” *Journal of Taibah University for Science* 10 (2016) 375–380
  9. Virendra Singh, DiwakarPalaria, **Kamal Devlal** “Determination of Cu, Zn, Mn& Fe Metals in Soil Employing the EDXRF & FAAS Techniques and Comparative Study of Results”, *Journal of Nuclear Physics, Material Sciences, Radiation and Applications* Vol-4, No-2, February 2017.
  10. Madan Singh, Monika Goyal&**Kamal Devlal**, Size and shape effects on the band gap of Semiconductor compound nanomaterials, *Journal of Taibah University for Science, Published by Taylor& Francis*, <https://doi.org/10.1080/16583655.1473946> (2018)
- 
11. **Devlal, Kamal** and Sharma, Mridula, Challenges of Globalization of higher education in India, *International Journal for Environmental Rehabilitation and Conservation*, Volume X, Issue 2, **December 2019**
  12. N. Suresh Kumar, Nityananda Das, **Kamal Devlal**, SyedaSeema, M. S. Shekhawat, Mohamed Hidayath, and S. Abdul Khader, Dielectric and magnetic studies of Ni-Mg mixed ferrite by combustion method, *AIP Conference Proceedings*, 110043 (**May 2020**); <https://doi.org/10.1063/5.0001907>
  13. Rana M., **K Devlal**, “Investigation of Optical and Electrical Properties of Pyrrole-2-carboxyldehyde (PCL) in PVA Polymer Matrix” *Materials Today: Proceedings*. ISSN:2214-7853. (Published by Elsevier, Indexed in SCI and SCOPUS). (<https://doi.org/10.1016/j.matpr.2020.12.994>)(**December 2020**)
  14. ShradhaLakhera, **Kamal Devlal**, Arabinda Ghosh, **MeenakshiRana**, In Silico Investigation of Phytoconstituents from Medicinal Herb ‘Piper Longum’ Against SARS-CoV-2 by Molecular

Docking and Molecular Dynamics Analysis” ‘Results in chemistry’, Volume 3, **January 2021**, <https://doi.org/10.1016/j.rechem.2021.100199>

15. Rana M., **Kamal Devlal**, “Thioglycolic acid capped CdTe quantum dots as sensors for the detection of hazardous heavy metal ion  $\text{Cu}^{2+}$  in water" Mapan(Published by Springer, Indexed in SCI and SCOPUS) (<https://doi.org/10.1007/s12647-021-00479-5>) (**July 2021**)

16. Hema, Tara Bhatt, Pratibha Arya, Charu Ch. Dhondiyal, Himani Tiwari, **Kamal Devlal**, Structural and vibrational study of molecular interaction in a ternary liquid mixture of benzylamine, ethanol and benzene, Vol.:(0123456789)13 Structural Chemistry <https://doi.org/10.1007/s11224-021-01832-9>, **September 2021**

17. S. Lakhera, M. Rana, **K. Devlal**, Investigation of Nonlinear Optical Response of Organic Compound Pyrrolidine-2,5-dione, DAE Solid State Physics Symposium. 55 (**December 2021**) 585-586

18. S. Lakhera, M. Rana, **K. Devlal**, Modelling the reactivity of Entrectinib and evaluation of its potential anticancer activity using Molecular Docking approach, DAE Solid State Physics Symposium 55 (**December 2021**) 583-584.

19. Shradha Lakhera, **Kamal Devlal**, Arabinda Ghosh, Papia Chowdhury, Meenakshi Rana, “Modelling the DFT structural and reactivity study of feverfew and evaluation of its potential antiviral activity against COVID-19 using molecular docking and MD simulations” Chemical Papers, <https://doi.org/10.1007/s11696-022-02067-6>, **Jan 2022**

20. Shradha Lakhera, Meenakshi Rana, **Kamal Devlal**, Ismail Celik, Rohitash Yadav “A comprehensive exploration of pharmacological properties, bioactivities and inhibitory potentiality of luteolin from *Tridax procumbens* anticancer drug by in-silico approach” *Structural Chemistry*, <https://doi.org/10.1007/s11224-022-01882-7>, **Jan 2022**

21. Shradha Lakhera, **Kamal Devlal**, Meenakshi Rana, Vivek Dhuliya “Quantum Mechanical Study of Three Aromatic Bioactive Fatty Alcohol Compounds with Nonlinear Optical and Potential Light Harvesting Properties” *Optical Materials* 129 (2022) 112476, <https://doi.org/10.1016/j.optmat.2022.112476> **May 2022**

22. Shradha Lakhera, **Kamal Devlal**, Meenakshi Rana, Ismail Celik “Study of nonlinear optical responses of phytochemicals of *Clitoria ternatea* by quantum mechanical approach and investigation of their anti-Alzheimer activity with in silico approach” *Structural Chemistry* <https://doi.org/10.1007/s11224-022-01981-5> **June 2022**

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23. Shradha Lakhera, Meenakshi Rana, **Kamal Devlal** “Theoretical study on spectral and optical properties of essential amino acids: a comparative study” *Optical and Quantum Electronics* 54:714 <https://doi.org/10.1007/s11082-022-04118-4>, **16 Sept 2022**

24. S. Lakhera, M. Rana, **K. Devlal**, Influence of Adsorption of Gold and Silver Nanoclusters on Structural, Electronic, and Nonlinear optical properties of Pentacene-5, 12-dione: A DFT study, *Opt Quant Electron* **55**, 178 (2023). <https://doi.org/10.1007/s11082-022-04422-z>

25. S. Lakhera, M. Rana, **K. Devlal**, Investigation of Nonlinear Optical Responses of Organic Derivative of Imidazole: Imidazole-2-carboxaldehyde, *IJMR*. 2023. <https://doi.org/10.1515/ijmr-2021-8649>

26. Lakhera, S., Rana, M. & **Devlal, K.** Investigation of the electronic and optical activity of halogen-substituted 2-nitrotoluene by density functional theory. *Opt Quant Electron* **55**, 292 (2023). <https://doi.org/10.1007/s11082-023-04569-3>

27. S. Lakhera, **K. Devlal**, M. Rana, V. Dhuliya, Computational study of non-linear optical and electrical properties of 1,3-dinitropyrene. *Opt Quant Electron* **55**, 85 (2023). <https://doi.org/10.1007/s11082-022-04371-7>
28. S. Lakhera, M. Rana, **K. Devlal**, N. Kanagathara, J. Janczak, Photovoltaic Characteristics of Organic Heterocyclic 2,9-dimethyl Quinacridone in Different Solvents Using DFT Approach, *Journal of Photochemistry and Photobiology A: Chemistry*, 2023, 114664, ISSN 1010-6030. <https://doi.org/10.1016/j.jphotochem.2023.114664>
29. S. Lakhera, K. Devlal, M. Rana, V. Dhuliya, N. Pandey, Non-Linear Optical Behavior of 2,9-Dimethylquinacridone with Adsorbed Gold and Silver Nanoclusters, *Optik*. 2023, 170983. <https://doi.org/10.1016/j.ijleo.2023.170983>
30. S. Lakhera, M. Rana, **K. Devlal**, S. Sharma, P. Chowdhury, V. Dhuliya, S. Panwar, Sagar L. P. Purohit, A. Dhanusha, T. C. Girisun, Exploring the Nonlinear Optical Limiting Activity of Para-Aminobenzoic Acid by Experimental and Dft Approach. *Journal of Photochemistry and Photobiology A: Chemistry* 2023, <http://dx.doi.org/10.2139/ssrn.4428991>
31. Shradha Lakhera, **Kamal Devlal**, Meenakshi Rana, N. Kanagathara, A. Dhanusha, T.C. Sabari Girisun, Shruti Sharma, Papia Chowdhury, “Two-photon absorption and optical limiting in 7-diethylamino-4-methyl coumarin”, *Journal of Photochemistry & Photobiology, A: Chemistry* 447 (2023) 11521.
32. Meenakshi Rawat, Mridula Sharma, **Kamal Devlal**, Dinesh Pandey, Harihar Prasad Gupta & Meenakshi Rana (2023). QUANTIFICATION OF X SPERM BY RAMAN SPECTROSCOPY IN PERCOLL DENSITY GRADIENT CENTRIFUGED BUFFALO SEMEN Buffalo Bulletin (Oct-Dec, 2023) Vol.42 No.4. 605-613.
33. Deeksha Chaudhary, Meenakshi Rana, Mridula Sharma and **Kamal Devlal** (2023). Detection and Quantification of X and Y sperms in Enriched Sahiwal Semen diluted in PBS using Raman Spectroscopy. *The Indian Journal of Animal Reproduction* Volume-44, Issue-2, 46-50.
34. Deeksha Chaudhary, Mridula Sharma and **Kamal Devlal** (2023). Study on Seminal Attributes of X- sperm Enriched Sahiwal Bull Semen. *Theriogenology Insight: An International Journal of Reproduction of Animals* 12(01): 11-16.
35. Deeksha Chaudhary, Mridula Sharma and **Kamal Devlal** (2023). Detection and Quantification of X and Y sperms in Enriched Sahiwal Semen diluted in PBS using Raman Spectroscopy. *The Indian Journal of Animal Reproduction* Volume-44, Issue-1, 56-60.
36. Shradha Lakhera, **Kamal Devlal**, Meenakshi Rana, “ Utilization of methyclothiazide adsorbed with malonamide for quantum chemical applications: A DFT and DFT-D2/D3 studies”, *Optik - International Journal for Light and Electron Optics* 295 (2023) 171485
37. Shradha Lakhera, **Kamal Devlal**, Meenakshi Rana, Vivek Dhuliya, “Influence of the substitution of different functional groups on the gas sensing and light harvesting efficiency of zero-dimensional coronene quantum dot: A first principle DFT study” *Spectro chimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 308 (2024) 123737

### **Paper communicated:**

1. Prachi Sharma, Gohar Taj, Apoorv Tewari, Shingini Sharma, Kamal Devlal, Dinesh Pandey and Mridula Sharma (2024). In-silico Characterization and epitope profiling of differentially expressed plasma Membrane proteins of X and Y chromosome bearing sperm. *Indian Journal of*

Animal Research. (accepted).

2. Laxmi Mehra, Meenakshi Rana, Shradha Lakhera, Deepak Butola, L P Purohit, Mridula Sharma, Kamal Devlal "Synthesis of Highly Fluorescent Nitrogen Doped Carbon quantum Dots using Citrus limetta (Sweet Lemon) Juice" *Physica E: Low-dimensional Systems and Nanostructures* (September 2024)

### **Papers presented in Symposiums:**

1. **Kamal Devlal** and B.R.K. Gupta; "Thermal expansion behavior of FeSi cubic crystalline material"; D.A.E. National Symposium on Solid State Physics, G.N.D. University, Amritsar 26-30 December 2004.
2. **Kamal Devlal**, "Electrical properties of CdS dispersed ammonium alum"; Poster presented in D.A.E. National Symposium on Solid State Physics, December 26-30, 2004. Gurunanak Dev University, Amritsar, India.
3. **Kamal Devlal**, M. Kumar and B.R.K. Gupta; "High-pressure equation of state of germanium"; Paper Published in D.A.E. National Symposium on Solid State Physics, G.N.D. University, Amritsar 26-30 December 2004.
4. **Kamal Devlal**, K.Y. Singh and B.R.K. Gupta "Equation of state for thermal expansion behavior of rutile TiO<sub>2</sub> crystalline material"; Oral presentation in National Conference on Advances in Solid State Physics, (February 11-12, 2005) at Thapar Institute of Engg. and Tech., Patiala, India.
5. **Kamal Devlal**, P.K. Pathak and R. Gill; "A comparative study of High pressure equation of state for Silicon nitride material"; Oral paper presentation in National Conference on Advances in Solid State Physics (February 11-12, 2005) at Thapar Institute of Engg. & Tech. Patiala, India
6. **Kamal Devlal** and B.R.K. Gupta; "Analysis of Equation of State for Semiconductors"; Oral Presentation on 2<sup>nd</sup> Uttarakhand Science congress (15 to 17 Nov. 2007) at Kumaun University, Nanital, Uttarakhand.
7. **Kamal Devlal**; "Equation of state for FeSi" paper presentation in National Conference on recent trends in materials science and nano structure (ncrtmsans-12), (January 3-4, 2012) at GPGC Rudrapur Uttarakhand, India.
8. **Kamal Devlal**; "Equation of state for carbon nanotubes (CNT)" paper presentation in Oral Presentation on 8<sup>th</sup> Uttarakhand Science congress (26 to 28 Dec. 2013) at Doon University, Dehradun, Uttarakhand.
9. **Kamal Devlal**; Presented a research paper "Study of X sperm enrichment in bovine by Raman Spectroscopy" in 9<sup>th</sup> conference of Indian Sciences on "Future India: Science and Technology" on 13<sup>th</sup> and 14<sup>th</sup> Oct 2018 at College of Technology G B Pant University of Ag. And Tech., Pantnagar, Uttarakhand.
10. **Kamal Devlal**; Presented a research paper "Modling of Size and Shape effect on Curie Temperature of Ni and Fe nanosolids in international Conference on "Advanced Materials, Energy and Environment Sustainability" on 14<sup>th</sup> and 15<sup>th</sup> December 2018 at University of Petroleum and Energy Studies, Dehradun, Uttarakhand.

### **Workshop/ Conference organized:**

1. Organized seminar on "Understanding opportunities in the solar energy" at MSIT, C4 Janakpuri, New Delhi Oct 2010.
2. Organized Seminar on Nanotechnology, at MSIT, C4 Janakpuri, New Delhi Mar 2011.
3. Organized Seminar on Large Hadron collider, at MSIT, C4 Janakpuri, New Delhi Feb 2010.

4. Organized National conference on National Science day on 28<sup>th</sup> Feb 2023
5. Organizing one week workshop of at MBPG College Haldwani, GPGC Pithoragarh, RCU GPGC Uttarkashi, HNB central university Campus, Pauri etc. each year since 2013.

### **Symposium / Conference attended**

1. Attended ten-days school on Physics of Beam and Accelerators, December 21-31, 2002 at Center for Advanced Technology, Indore, India.
2. Attended and presented posters in D.A.E. National Symposium on Solid State Physics, December 26-30, 2004. GurunanakDev University, Amritsar.
3. Attended and oral paper presentation in National Conference on Advances in Solid State Physics, February 11-12, 2005 at Thapar Institute of Engineering & Technology, Patiala, India.
4. Attended and presented posters in 2<sup>nd</sup> Uttarakhand Science congress, November 15-17, 2007. Kumaun University, Nainital.
5. Attended “IREDA & EU ASHIA LINK SPONSORED WORKSHOP” at Bharti Vidyapeeth college of Engineering, PashimVihar, New Delhi. Feb. 2, 2007
6. Seminar on Human Rights at MSIT, C4 Janakpuri, New Delhi Dec 2011.
7. Seminar on “Role of UGC in Higher Education” at MSIT, C4 Janakpuri, New Delhi Mar 2009.
8. Attended Lecture on Particle Physics by Noble Laureate at National Physical Laboratory New Delhi Feb 2012.
9. Attended seminar on “Human Values and Professional ethics” at MSIT, C4 Janakpuri, New Delhi Mar 2012.
10. Attended workshop and visit to different Divisions of National Physical Laboratory New Delhi in Sept 2012
11. Attended training on “Disaster management” at MSIT, C4 Janakpuri, New Delhi Oct 2012.
12. Attended and presented paper in NATIONAL CONFERENCE ON RECENT TRENDS IN MATERIALS SCIENCE AND NANO STRUCTURE(NCRTMSANS-12) at GPGC Rudrapur Uttarakhand, Jan 3,4 2011
13. Attended two-day national conference on “Recent Trends in Interdisciplinary Research and Astrophysics-Space Science” during November 3-4, 2012 at M. B. Govt. P. G. College, Haldwani, Nainital, Uttarakhand.
14. Attended two-day workshop on Statistical Programming for Social Sciences (SPSS) held at Uttarakhand Open University, Haldwani, during January 7-8, 2013.
15. Attended two-days workshop in LaTeX at Uttarakhand Open University, Haldwani, during January 7-8, 2013.
16. Attended four-day workshop in Distance education Uttarakhand Open University, Haldwani during March 18-22, 2013.
17. Attended and presented posters in 8<sup>nd</sup> Uttarakhand Science congress, December 26-28, 2013. Doon University, Dehradun.
18. Attended Five-day workshop on Ground Water under Technical Education Quality Improvement at College of Technology G B Pant University of Ag. And Tech., Pantnagar, Uttarakhand during March 21-25, 2014.
19. Attended One-day workshop on world water day at College of Technology G B Pant University of Ag. And Tech., Pantnagar, Uttarakhand, March 22, 2014.
20. Attended four week Refresher Course in Physics organized during 22.09.2014 to 17.10.2014 at Academic Staff College, Jawaharlal Nerhru University, New Delhi.

21. Attended One-day National Workshop on Possibilities of Open Universities on Higher Education at SBS Govt. PG College Rudrapur, Uttarakhand on January 20, 2015.
22. Attended One-day Workshop on Ecosystem Services and Innovative Financial Mechanism for Natural Resource Management, at Graphic Era University, Dehradun on March 23, 2015.
23. Attended Three-day National Workshop on Geospatial Education and Training Workshop on Management of Water Resources, Glaciers and Climate Change with Special Reference to Uttarakhand at National Institute of Hydrology, Roorkee during May 24-26, 2015
24. Attended four-days Workshop on Community Radio Technology at Uttarakhand Open University, Haldwani, during June 23-26, 2015.
25. Attended National Conference on Science & Technology for Human Development in India, during September 20-21 March, 2015 at Gurukul Kangri University, Haridwar.
26. Attended workshop on “Technology Enabled Education” on 26<sup>th</sup> July 2016 at M.B. Govt. P. G. College, Haldwani, Nainital, Uttarakhand.
27. Attended Intensive workshop on “Community Radio Production” on 8<sup>th</sup> and 9<sup>th</sup> Feb 2017 at Uttarakhand Open University, Haldwani, Nainital, Uttarakhand.
28. Attended 4 week orientation course Course in organised during 20.02.2017 to 21.03.2017 at Academic Staff College, Human Development resource center, Kumaun University, Nainital
28. Attended capacity Building workshop on “Open Education Resources” on 28<sup>th</sup> March 2017 at Uttarakhand Open University, Haldwani, Nainital, Uttarakhand.
29. Attended one day workshop on “Healthy Nutrition and Healthy Living” on 4<sup>th</sup> September 2017 at Uttarakhand Open University, Haldwani, Nainital, Uttarakhand.
30. Attended Brainstorming session on “Developing Effective Technological Eco-system to Foster Teaching learning Paradigm in Uttarakhand” on 27<sup>th</sup> July 2018 at Uttarakhand Open University, Haldwani, Nainital, Uttarakhand.
31. Attended 9<sup>th</sup> conference of Indian Sciences on “Future India: Science and Technology” on 13<sup>th</sup> and 14<sup>th</sup> Oct 2018 at College of Technology G B Pant University of Ag. And Tech., Pantnagar, Uttarakhand.
32. Attended International Conference on “Advanced Materials, Energy and Environment Sustainability” on 14<sup>th</sup> and 15<sup>th</sup> December 2018 at University of Petroleum and Energy Studies, Dehradun, Uttarakhand.
32. Attended International Conference on “Advanced Materials, Energy and Environment Sustainability” on 14<sup>th</sup> and 15<sup>th</sup> December 2018 at University of Petroleum and Energy Studies, Dehradun, Uttarakhand.
33. Attended National Conference on “Holistic Approach Towards Quality Enhancement in Higher Education” on 29<sup>th</sup> and 30<sup>th</sup> January 2019 at PLSM Government PG College, Rishikesh, Dehradun.
34. Attended National Seminar on “Emerging Trends and Future Challenges Science” on 27<sup>th</sup> and 28<sup>th</sup> February 2019 at SGRR PG College, Dehradun, Uttarakhand.
35. Attended Capacity building workshop on “Development of online courses using Moodle Learning Management System” on 1<sup>st</sup> and 2<sup>nd</sup> March 2019 at UOU Haldwani.
- 36. Attended 10<sup>th</sup> Refresher Course in “Material Preparation and Measurement of Properties” on 5<sup>th</sup> and 20<sup>th</sup> March 2019 at IASc Bengaluru.**
37. Attended 4 weeks NPTEL AICTE Faculty Development programme Course in “Structural Analysis of nanomaterials” during July-August 2019 online at NPTEL.

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38. Attended Capacity Building programme for College Teacher on “Prevention of alcohol and

Drug abuse” during Sept 26-27. 2019 at Uttarakhand Open University, Haldwani

39. Attended National Conference on “FIT India, Holistic Health Care for Quality Life” November 19, 2019 at LSM Government PG College Rishikesh, Dehradun, Uttarakhand.

40. Attended National Conference on “Geology and natural Resources of Himalaya” organized by LSM Government PG College Rishikesh, Dehradun, Uttarakhand, November 25-26, 2019.

41. Attended Faculty development Programme, on “Design Development and Delivery of MOOCS” 03-07 October 2019, organized by Staff Training and Research Institute of Distance Education, GNOU, Delhi

42. Attended national Seminar on “Progression and Innovation in Higher Education” 16<sup>th</sup> November 2019, Organized by IQAC, MB Govt. PG College, Haldwani, Uttarakhand.

43. Attended Capacity Building Programme, 11 -13 February 2020, organized by Uttarakhand Open University Haldwani, Uttarakhand.

44. Attended National Conference on “Science and Technology for Rural Development”, February 15-16, 2020, organized by Gurukul Kangari Uttarakhand, Haridwar, Uttarakhand.

45. Participated in five days Faculty development Programme in “R programming” organized by the USERC, IIT Mumbai and Uttarakhand Open University from 15<sup>th</sup> June 2020 to 19<sup>th</sup> June 2020.

46. Participated in one week Faculty development on “Recent trends in research and applied Statistics” organized by the Sunrise University, Alwar, Rajasthan from 13<sup>th</sup> June 2020 to 19<sup>th</sup> June 2020.

47. Attended and presented a paper on International e Conference on “Recent trends in advancement of Mathematical and Physical Sciences” during 22- 23 May 2020 at Deva Nagri College Meerut.

49. Attended a national Webinar on “Post Covid impact on environment and Pollution” Organized by Department of Chemistry, NAS PG College Meerut on 31<sup>st</sup> May 2020.

50. Attended an National Webinar on “Experimental and Computational Tools for Material Research” jointly Organized by Indian institute of Information technology, Jabalpur and Central University of Rajasthan from June 1-8, 2020.

51. Attended an International Webinar on “Intellectual Property rights” Organized by KEL Society Science and Commerce College, Mumbai, India on 6<sup>th</sup> June 2020.

52. Attended a National Webinar on “E learning Tools for 21<sup>st</sup> century learners” Organized by School of Education, Uttarakhand Open University, Haldwani on 6-7 June 2020.

53. Attended an International Virtual Conference on “Role of Technology in the era covid 19 Education” Organized by MIET and USERC, Uttarakhand, India on 7<sup>th</sup> and 8<sup>th</sup> June 2020.

54. Attended a National Webinar on “Role of Science and Technology during covid 19 Pandemic” Organized by Dayanad College, Hisar 12 June 2020.

55. Attended Faculty awareness programme on “Online teaching Pedagogy in Higher education” Organized by National Institute of Food Technology Entrepreneurship and Management on 11-14 June 2020.

56. Organized and presented a research paper in International e- Conference on “Recent Advances in Physics” Organized by Govt. PG College Bazpur, Uttarakhand, India on 24<sup>th</sup> and 25<sup>th</sup> June 2020.

57. Attended one month Massive open online Course(MOOCs) in “Design e learning content” during 1- 31 July 2020 at ICAR National Academy of Agriculture Research Management, Hyderabad.

58. Attended two day workshop on virtual laboratories” during November 9-10, 2020 at

Uttarakhand Open University, Haldwani

59. Participated in the Faculty Induction Programme – FIP 01 organized by the Centre for Internal Quality Assurance (CIQA) and Directorate of Academics of Uttarakhand Open University from 05th March 2021 to 05th April 2021.

60. Participated in the Webinar on Forest, water and Climate change” organized by Society for Mountain Development and Conservation, Nainital on March 10, 2021.

61. Participation in Two-Days National webinar on “Role of India in environmental sustainability: in context to bio-resources & water” during the occasion of celebrating “Bharat Ka Amrit Mahotsav” held on August 27-28, 2021.

62. Participated in one day Awareness workshop on sign language on the occasion of International Week of the Deaf (IWD) organized by Uttarakhand Open University, Haldwani and Indian Sign Language Training and Research Centre (ISLRTC), New Delhi, September 28, 2021.

63. Participation in National Webinar on Achievements, Challenges and Perspectives in Higher Education with special reference to NEP 2020, celebrating “Azadi ka Amrit Mahotsav” held on October 30, 2021.

64. Participated in the Online Training on ‘NEP 2020: Changing Role of Teachers in Distance and Online Learning’ for Faculty of IGNOU, SOUs, DEIs (24th to 26th March, 2022) Organized by Staff Training and Research Institute of Distance Education, GNOU, Delhi

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65. Participated and member of organizing committee in the national conference on “ Agriculture Applied and Life science Current Research” 18-19 November, 2022) Organized by Association for Plant Science researchers, Dehradun and Uttarakhand Open University ,Haldwani

66. Participation and presented a paper in National Conference in the awareness of Polymer material, organized by department of Chemistry, G B Pant university of Ag and Tech, Pantnagar and DRDO, 25-26 April 2023.

67. Attended Online one week Faculty Development Programme on “National Education Policy-2020” from 29 May-04 June, 2023 and obtained GradeA+ organized by Teaching Learning Centre Ramanujan College, University of Delhi In collaboration with Dhing College, Dhing Nagoan, Assam

68. Participation and presented a research paper in “International Conference in Functional Material and its Application Aspects”, organized by Department of Physics, Institute of Sciences and Humanity, SIMATS Engineering and Saveetha Institute on Medical and Technical Sciences, Chennai, TamilNado, 7-8 September 2023.

69. Participated and presented a paper in “National Conference on Recent Advances in Theoretical & Experimental Sciences”, 29-30 September 2023 Organized by Department of Physics, Bhakt Darshan Govt. P.G. College Jaiharikhal (Uttarakhand) India.

70. Participated in “National Library Week”, 16-20 November 2023 Organized by Uttarakhand Open University, Haldwani (Uttarakhand) India.

71. Participated in “Regional Training workshop on Advanced Multivariate statistical Analysis in Water Quality” 23-24 January 2024 Organized by UCOST, DAV PG College Dehradun and Uttarakhand Open University, Haldwani (Uttarakhand) India.