


STANDARD TEMPLATE OF FACULTY PROFILE FOR UPLOADING OF UNIVERSITY WEBSITE

Title	Dr	First Name	Kriti	Last Name	Batra	
Designation		Associate Professor				
School /Dept. Name		University School of Automation and Robotics, East Delhi Campus of Guru Gobind Singh Indraprastha University, New Delhi- 110092				
Address:		Flat No.306, Mahagun Villa Apartments, Sector-4, Vaishali, Ghaziabad, UP-201010				
Phone No.	Office					
	Residence	(optional)				
	Mobile	(optional)				
Email	1. kbatra@ipu.ac.in			2. Kriti.ipu@gmail.com		
Web Page (if any)	NA					
Subjects Taught	<p>Undergraduate courses: Physics I & II theory courses, Physics lab to all B.Tech Programmes , Embedded Systems and Microcontrollers Lab to B.Tech-Industrial Internet of Things), BSc. Physics(H) and Electronics Courses (Delhi University).</p> <p>Post Graduate courses Embedded Systems Theory, Embedded Systems Lab, Computational physics Lab with Matlab programming -M.Tech (Engineering Physics).</p> <p>PhD Course work-Computational Physics with matlab</p>					
Areas of Interest/ Specialization	<ul style="list-style-type: none"> • Molecular Modelling and Spectroscopy, DFT studies of Molecules, Atomic and Molecular clusters, Electronic Structure calculations, Linear and Non linear Optical Properties, Nanostructures, Quantum Heterostructures, Effect of External fields on low dimension systems etc. (Theoretical Atomic and Molecular Physics) • Embeddded systems, Microcontrollers, Entrepreneurship 					
Experience (in years)	Total	20 years				
	Industry	Nil				
	Teaching	<ul style="list-style-type: none"> • Associate Professor, University School of Automation and Robotics, GGS Indraprastha University (2022-24) • University School of Basic & Applied Sciences (4th September 2018-2022). • Assistant Professor, University School of Basic & Applied Sciences, GGS Indraprastha University (4th September 2006- 3rd September 2018). • Lecturer- Hansraj College, Delhi University (2004-2006). • Lecturer - Kirori Mal College, Delhi University 				

		(2003-2004).
	Research	15 years Ph.D Guidance: Guiding Research Scholars in the field of electronic structure calculation, molecular spectroscopy, DFT studies of molecular systems using specialized packages like Gaussian, Gauss View etc. PhD awarded (one) and submitted (one) Guided M.Tech (Engineering Physics) dissertation since 2006 and B.Tech dissertation at University School of Automation and Robotics.
Educational Qualifications	UG	BSc. Physics(H) – Department of Physics, Kalindi College, University of Delhi, 1994-97
	PG	MSc. Physics (with specialization in Electronics)- Department of Physics and Astrophysics, University of Delhi, 1997-1999
	Doctorate	PhD (Physics) – Department of Physics and Astrophysics, University of Delhi, 2005 Thesis Title: Excitation and Ionization Studies of Atomic Systems including Rydberg Atoms in external electromagnetic fields
	Any other –	CSIR-NET-JRF (2000)
Research Publications in Journals (last 5 years)	<ul style="list-style-type: none"> • A DFT study of $(La_2O_3)_n$ clusters and effect of Ba, Y and Hf doping for their optoelectronic applications, Shilpa Kashyap and Kriti Batra, Molecular Physics e2317449 (2024). • Effect of Zr substitution on structural, electronic, vibrational, thermodynamic and optical properties of $(HfO_2)_p$ clusters: a DFT study of $(HfO_2)_p$ and $Hf_qZr_rO_{2(q+r)}$ clusters, Shilpa Kashyap and Kriti Batra, Journal of Nanoparticle Research, 26, (2024),13. • Electric field effect on $Hf_xTi_yO_{2(x+y)}$ clusters for applications in MOSFETs and DSSCs: a DFT study, Shilpa Kashyap and Kriti Batra, Journal of Molecular Modeling, 29, (2023), 376. • Structural, electronic, thermodynamic, and optical properties of Sn_lSe_mSn clusters: A DFT study, Shilpa Kashyap and Kriti Batra, Chemical Physics, 558, (2022),111501. • Quantum control of optoelectronic and thermodynamic properties of dopamine molecule using external electric field: A DFT and TD-DFT study, Garima Chanana, and Kriti Batra, Computational and Theoretical Chemistry, 1222, (2023), 114051(1-13). • A DFT Study on Diels-Alder Reaction of Dibenzazepine and 2,5-Dimethylfuran Using Different Solvents and Temperature Conditions, Shilpa Yadav, Neeti Misra, Pankaj Khanna, Mansi, Kriti Batra & Leena Khanna, Polycyclic Aromatic Compounds, 43(4) (2023), 2908. • Modelling natural dye molecules lawsone and purpurin in different solvents for DSSC applications: a DFT and TD-DFT study, Garima Chanana, and Kriti Batra, Molecular Simulation, 48(9) (2022),760. • Investigating functional performance and substituent effect in modelling Molecular Structure, UV-Visible Spectra and Optical properties of D-π-A 	

	<p>conjugated organic dye molecules: A DFT and TD-DFT study, Garima Chanana, Kriti Batra, Journal of Molecular Modelling, 27 (2021) 229.</p> <ul style="list-style-type: none"> • Exploring response of Li₂ molecule to external electric field: A DFT and SAC-CI study, Garima Chanana, Kriti Batra and Vinod Prasad, Computational and Theoretical Chemistry, 1169, (2019), 112620. • Spherical quantum dot in Kratzer confining potential: Study of linear and nonlinear optical absorption coefficients and refractive index changes, Kriti Batra, Vinod Prasad, European Physical Journal B, 91, (2018), 298(1-11). • Finite difference calculation of optical properties of hydrogenic impurity in spherical quantum dot with parabolic confinement, Kriti Batra, Vinod Prasad, Revista Mexicana de Física E, 64,(2018) ,7. 		
Papers Published in Conference Proceedings(last 5 years)	<ul style="list-style-type: none"> • Modelling novel organic molecule 2-(4-ethylbenzylidene) malononitrile (EBM) for Nonlinear Optical (NLO) Applications , Garima Chanana and Kriti Batra, Springer Proceedings in Physics of International Conference on Atomic, Molecular, Optical and Nano Physics with Applications held on 18th-20th December 2019, Organized by Department of Applied Physics, Delhi Technical University, Delhi India , published In Proceedings of the International Conference on Atomic, Molecular, Optical & Nano Physics with Applications, Volume 271 (2022) 421-438. Springer Singapore • Dynamics of weakly bound atoms in the presence of two color fields and magnetic field, Kriti Batra, Poonam Silotia, Anjali Maan and Vinod Prasad, Conference Proceedings, NCRAMFT-2K15, 28-29 December 2015, held at BPIT, GGSIPU, Delhi. 		
Books Authored/ BookVolume Chapters	<ul style="list-style-type: none"> • Chapter “Atomic dynamics with Chirped ultra short intense laser pulse” published in the international book “Universality and Diversity in Sciences, edited by M.Fedorov and W.Becker, World Scientific Press, Kluwer Plenum publishers, New York (2004) K.Batra, N.Verma, A.Maan and M.Mohan. 		
No. of Conferences	National	Attended	Organized
		<ul style="list-style-type: none"> • Visit to” Indian Mobile Congress 2023 organized by Department of Telecommunications and Cellular Operators Association of India At Bharat Mandapam ,Pragati Maidan, 27-29 October 2023. • Faculty development program on “Enabling Entrepreneurship, Startup Incubation and Innovation Mindset” conducted by Association of Indian Universities and GGSIPU, 12-16 June 2023. • Online Summer School “Exploring Computational Thinking” organized by Indian Association of Physics Teachers, RC12A from 29 May to 10 June 2023. • Advance Faculty Development Program for IDEA Labs on "Design Thinking" from 24-30 May, 2023 conducted by AICTE and Ajay Kumar Garg Engineering College, Ghaziabad. 	<ul style="list-style-type: none"> • Member of National Anveshika Experimental Skill Test (NAEST) organized by NANI, IAPT, Shiksha Sopan and Vigyan Prasar, 2021-22. • Member-of Organizing committee of “Innovations in Composites for General Purpose to High End Applications”

- Successfully completed 5 day workshop on “Drone Applications and UAS” conducted by CDAC Noida and MEITY from 13-17 March 2023.
- One week skill workshop on Wire Laser metal 3D printing, organized by University School of Automation and Robotics, GGSIPU EDC, 11-15 January 2023.
- National Webinar Series- “Omnipresent Physics: Experiential approach” organized by National Academy of Sciences India and Kalindi College 20 October- 1 November 2022.
- Participated in Online Lecture Series on “National education Policy 2020: Implementation Challenges and path ahead organized by School of Physical Sciences, Jawahar Lal Nehru University and Indian Association of Physics Teachers from February 19-April 02, 2022.
- Participated in the value added course on “Tools and Techniques in Basic and Applied Research” organized by the University School of Basic and Applied Sciences (USBAS), GGS Indraprastha University, Dwarka for the duration 27th December 2021 to 31st December 2021.
- Indraprastha webinar series On “Role of Science, Technology and Innovation in the Current Scenario” organized by USBAS, GGS Indraprastha University, New Delhi, 26th – 29th May 2020
- Online Faculty Development Program on "Design and Development of MOOCS and e learning Technologies" organized by USE, GGS Indraprastha University, New Delhi from 10th May to 16th May 2020
- Seminar on “Ba & Bapu 150th Birth Anniversary and Dr. Meghnad Saha 125th Birth Anniversary organized by National Academy of Sciences India(NASI) and INSA, Delhi, on 5th October 2019.
- Visited NPL on CSIR-NPL Open Day on 30th September 2019.
- Attended Fourth Lecture workshop on Trans disciplinary areas of Research and Teaching by Shanti Swarup Bhatnagar Awardees organized by DST, NASI and Deen Dayal Upadhaya College, Delhi,

conducted by USBAS, GGSIPU Delhi, 17th - 18th February, 2015.

September 27-28, 2019.

- Two Days National Workshop “PHOTOPTICS” organized by Department of Physics and Materials Science & Engineering Jaypee Institute of Information Technology Sector, 128, Noida 201304 – U.P, August 16-17, 2019
- Seminar on “Life and Works of Prof. M. N. Saha and Prof. S. N. Bose” Organized by JIIT, Noida and NASI Delhi Chapter, September 15, 2018.
- CSIR sponsored National Workshop on “Recent trends in Computational Physics “organized by Department of Physics and Materials Science & Engineering Jaypee Institute of Information Technology Sector 128, Noida 201304 – U.P, April 6-7, 2018.
- Faculty Development Programme on “Multidisciplinary Approaches to Research” conducted by USLLS, GGS Indraprastha University, 15-31 July 2017.
- Faculty Development Programme on “Data Science & Big Data Analytics” conducted by ICT Academy and USICT, GGSIPU, June 12-16, 2017.
- Completed “EMC Associate” Certification from DELL EMC on “Big Data Analytics” in June 2017.
- Special “Summer School- Interdisciplinary Refresher Course” conducted by UGC-ASC, Jamia Millia Islamia, from 6-26, May 2015.
- Short term course on “Cyber Threats and Computer Security Measures” conducted by USICT, GGSIPU and NITTR, Chandigarh, from 13-24, April, 2015.
- Participation in “Innovations in Composites for General Purpose to High End Applications” conducted by USBAS, GGSIPU Delhi, 17th -18th February, 2015.
- Faculty Development Program on “Multidisciplinary Approach to Research”, conducted by USLLS, GGSIPU, 17th February, 2014 to 2nd March, 2014.
- Attended seminar and workshop on “Solutions for embedded systems design challenges” conducted by Tektronix, New Delhi, India on 23rd April 2010.
- Attended workshop on Nanotechnology

	<p>conducted by USBAS, Delhi India on 6th October 2009.</p> <ul style="list-style-type: none"> • Attended University Grants Commission (India) sponsored Orientation Course conducted by Centre for Professional Development in Higher Education, CPDHE, University of Delhi, March 2009. • Attended a workshop on “Embedded Systems” at Fab Lab (established by MIT, USA) Vigyan Ashram, Pabal, Pune from 5th June to 19th June 2008. • Oral presentation “Molecular Modeling and its applications” in Two Days National Workshop “PHOTOPTICS” organized by Department of Physics and Materials Science & Engineering Jaypee Institute of Information Technology Sector, 128, Noida 201304 – U.P, August 16-17, 2019 	
<p>International</p>	<ol style="list-style-type: none"> 1. Invited Lecture on “Spectral studies of $(La_2O_3)_n$ molecular clusters for potential applications”, Kriti Batra in International Conference on Atomic, Molecular, Material, Nano, and Optical Physics with Applications (ICAMNOP 2023), organized by Delhi Technological University, Delhi, India, December 20-22, 2023. 2. Poster presentation on “Terahertz (THz) applications of $Hf_qZr_rO_2$ clusters using DFT” in International conference on “Ultrafast sciences-2023 DAE-BRNS 10th theme meeting” held at National Physical Laboratory, New Delhi, November 25-27, 2023. 3. Poster presentation on “DFT studies of As_xTe_y clusters in terahertz (THz) region for optoelectronic applications” in international conference on “Frontiers in Terahertz Technology and Applications (FTTA-2021)” Shilpa Kashyap, Kriti Batra held at National Physical Laboratory, New Delhi, December 9-11, 2021. 4. Poster presentation on “Optical Absorption in water cluster anion using Time Dependent Density Functional Theory” Shilpa Kashyap, Kriti Batra in International Conference on Advances in Smart Materials and Emerging Technologies (ASMET 2020) organized by Indira Gandhi Technical University for 	<ul style="list-style-type: none"> • Co-Convener of 8th International Conference on Advanced Production and Industrial Engineering, (ICAPIE - 2024) to be organized at GGSIPU, EDC. • Session Chair and Member of Scientific Advisory Committee of International Conference on Advances in Smart Materials and Emerging Technologies (ASMET 2020) organized by Department of Applied Sciences and

	<p>Women during January 23-24, 2020.</p> <p>5. Poster presentation entitled “Theoretical investigation of UV-visible and IR spectra of Lawsone dye molecule: A DFT and TD-DFT study” Garima Chanana, Kriti Batra in the International Conference on Advances in Smart Materials and Emerging Technologies (ASMET-2020) organized by Department of Applied Sciences and Humanities, IGDTUW during January 23-24, 2020.</p> <p>6. Invited Lecture on “Exploring molecular structure, spectra, Frontier molecular Orbital Analysis, Optical and Thermal response of Dopamine Molecule using Density Functional Theory,” Kriti Batra, in the international conference on Atomic, Molecular, Optical and Nano Physics with Applications held organized by Department of Applied Physics, Delhi Technical University, Delhi India, December 18-20, 2019.</p> <p>7. Poster presentation “Quantum chemical calculations of structural and thermodynamic properties of Li₂ molecule in the presence of electric field using Density Functional Theory” Garima Chanana, Kriti Batra, International Conference on Physics, Society and Technology (ICPST-2019) Organized by Department of Physics, Deshbandhu College Delhi University from January 17-19, 2019.</p> <p>8. Oral Paper Presentation “Photo-excitation and ionization of weakly confined atoms in magnetic fields.” Kriti Batra, Asish Tyag and Vinod Prasad in “International Conference on Current Developments in Atomic, Molecular, Optical and Nano Physics, CDAMOP-2015, held at Department of Physics and Astrophysics Delhi University, Delhi, 11th -14th March 2015.</p> <p>9. Oral Paper presentation on “Dynamics of single electron Quantum ring in delayed half cycle pulses”, Kriti Batra, in International Conference on NanoScience and Nano Technology”, ICNN, held at Department of Applied Physics, Baba Saheb Bhim Rao Ambedkar, University, Rae Bareilly, Lucknow, Nov, 18th -20th, 2013.</p>	<p>Humanities & OSA Student Chapter of Indira Gandhi Technical University for Women during January 23 – 24, 2020.</p> <ul style="list-style-type: none"> • Member of Scientific/ Research Committee of International Conference on Atomic, Molecular, Optical and Nano Physics with Applications held on 18th-20th December 2019, Organized by Department of Applied Physics, Delhi Technical University, Delhi India. • Member of Organizing Committee International Conference on ‘Current Development s in Atomic, Molecular, Optical and Nano Physics CDAMOP-2011, held at Department of Physics and
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				Astrophysics, Delhi University, Delhi, December 14-16, 2011. <ul style="list-style-type: none"> • Member of the Scientific Committee International Conference on “Current Developments in Atomic, Molecular and Optical Physics With its Applications” (CDAMOP) held in March 22-24, 2006 at Department of Physics & Astrophysics, University of Delhi, Delhi.
Research Guidance	Awarded	PG	M. Phil	Doctorate
		10	NA	1
	Undergoing	NA	NA	1
Research Projects	Completed-	5 FRGS Projects		
	Undergoing	NA		
Awards & Distinctions	Certificate of Appreciation for evaluation of NAEST conducted by National Anveshika Network of India, Indian association of Physics Teachers, Vigyan Prasar and Shiksha Sopan			
Administrative Assignments Handled	Institution Innovation council certified Ambassador (advance level) Vice President Institution Innovation council Head Incubation Foundation IPU IIF Chairperson-Internal Complaints Committee Coordinator-AICTE-IDEA lab Convener-Physics Lab Technical Committee, Physics Lab (USAR &USBAS) Convener-Electronics Lab Technical Committee, Electronics Lab (USAR) Coordinator-B.Tech (A.I.D.S)-2022-24 Convener- East Campus (GGSIPU) Technical Committee Convener-Program Education Objectives Committee (NAAC) Convener- Syllabus Committee (B.Tech/BSc/M.Tech) Coordinator- B.Tech (Physics-courses)			

	<p>Incharge-Practical Exam Committee (USAR) Incharge- B.Tech Physics Lab Coordinator Science Quiz, USBAS and USAR Member -Board of Studies (USBAS &USAR) Member -Interview Committee Guest faculty Member Document-Verification Committee Assistant Professor Member-University Procurement Committee Co-coordinator-M.Tech(EP) (2011-12) Admission Officer-B.Tech (USAR), M.Tech (EP) Member-Audit Committee, Purchase Committee (Physics Lab) Incharge-Equipment write off committee(Physics Lab) Member-Academic Program Committee (APC) Member-School Research Committee (SRC), Member-Research Advisory Committee(RAC) Member-PhD Admission Committee</p>
Association with Professional Bodies	<ol style="list-style-type: none"> 1. Indian Association of Physics Teachers 2. Vijanana Bharti (Vibha India) 3. Evaluator National Anveshika Network of India
Any other Achievements	<ul style="list-style-type: none"> • Certificate of Appreciation for evaluation of NAEST conducted by National Anveshika Network of India, Indian association of Physics Teachers, Vigyan Prasar and Shiksha Sopan • AICTE certification of Innovation Ambassador (Advance Level) • Referee for Elsevier Journal • Referee for Springer Nature Journal