




Shivaji College Faculty Details Proforma



Title	DR.	First Name	NAND GOPAL	Last Name	GIRI	Photograph
Designation		PROFESSOR				
Address		Department of Chemistry, Shivaji College (University of Delhi), Raja Garden, New Delhi- 110027, India				
OfficePhone No.		011-25116644, 011-25155551				
Residence						
Mobile		+91-9811364367				
Email		nandgopalgiri@shivaji.du.ac.in giri_nand@rediffmail.com				
Web-Page		http://www.shivajicollege.ac.in/academics/departments/faculty.php?department=chemistry				
Educational Qualifications						
Degree	University/Institute				Year	
Ph.D.	UNIVERSITY OF DELHI				2008	
PG	DDU GORAKHPUR UNIVERSITY GORAKHPUR				1992	
UG	ST. ANDREWS PG COLLEGE (DDU GORAKHPUR UNIVERSITY GORAKHPUR)				1990	
B.Ed.	JV JAIN PG VOLLEGE, SAHARANPUR (CCS UNIVERSITY MEERUT)				2003	
Career Profile						
Academic:						
Professor , Department of Chemistry, Shivaji College (University of Delhi), February 2024 – Till date. Associate Professor , Department of Chemistry, Shivaji College (University of Delhi), July 2020 - January 2024. Assistant Professor , Department of Chemistry, Shivaji College (University of Delhi), August 2008 - July 2020. Assistant Professor , Department of Chemistry, Kirori Mal College (University of Delhi), 25 th July - 29 th August 2008.						
Industrial:						
• Worked in ' Jindal Exports Ltd. ' (Three times National Export Award Winner by President of India) Delhi, as 'Approved Analytical Chemist' in mentha oil (IP) and menthol (IP/BP/USP) from Delhi Drugs Controlling Department National Capital Territory Delhi, July 1997- February 2001.						

- Worked as 'Manufacturing cum Analytical Chemist' in 'Wonder Hygiene Products Pvt. Ltd.' Delhi (Contract manufacturer of consumer products of MODICARE, a division of Indofil India Ltd.) August 1995- June 1997.
- Worked as Manufacturing Chemist in 'Maiden Pharmaceuticals Pvt. Ltd.' Kundali, Sonapat, Haryana, Feb. 1994.

Administrative Assignments

- Co-Convener (Science) in admission Committee, 2013-2014, 2018-2019, 2019-2020.
- Member in Development Committee, 2013-2015, 2018-2021.
- Teacher In-Charge, Department of Chemistry, 2013-2014, 2014-2015, 2024-2025.
- Admission In-charge for B.Sc. (Chemistry Hons.), 2014-2015, 2024-2025.
- Member in Internal Assessment Committee, 2016-2018.
- Member Discipline Committee, 2018-2021, 2023-2024, 2025-2026.
- Convener in evaluation of SEC/AECC papers in May-June 2019.
- Nodal Officer, for Anti Tobacco Control Programme 2019-2020.
- Co-Convener (Chemistry), "DBT Star College Scheme" 2020-2025.
- Nodal Officer, OBE Examination, December 2020.
- Member Library Committee, 2024-2025.
- Teacher In-charge of B.Sc. (Physical Science), 2023-2024.
- Member College Research and Innovation Cell 2025-2026.

Areas of Interest/Specialisation

Theoretical Organic Chemistry, Organic Synthesis, Reaction Mechanism, Green Chemistry, Supramolecular Chemistry.

Subjects Taught

B.Sc. (H) and **B.Sc. (Prog)**- Year I, II, III. Organic Chemistry contents including heterocyclic chemistry, stereochemistry, Name reactions, reaction mechanism, functional group chemistry, polycyclic aromatic compounds, bio-molecules and spectroscopy.

Innovation Project/Research Projects (Major Grants/Research Collaboration)

Project Investigator of the project titled "Effect of Soil pH on Germination of Seeds and Plant Growth" under DBT Star College Scheme for the students of undergraduate courses of Science Stream of Shivaji College. (Ongoing Project)

Publications Profile

Books:

- **Giri, Nand Gopal**; Saluja, Pooja; Shukla, Saroj Kumar (2025). 'Organic Name Reaction, Mechanism and Conversion (Fundamental to Advanced Synthesis Strategies)' [1st ed.], New Delhi, Ane Publishers and Distributors LLP. ISBN: 978-81-9814-400-3.
- Jaiswal, A.K., **Giri, N.G.**, Gupta, M. (2023). Practical Book, 'Forensic Chemistry and Toxicology' [1st ed.], New Delhi, Selective and Scientific Books, ISBN: 978-81-89128-98-2.

Book Chapters:

- Nanotechnology in Agricultural Practices: Prospects and Potential, **N.G. Giri**, N.S. Abbas, Saroj Kumar Shukla, "Applications of Emerging Nanomaterials and Nanotechnology", published by Materials Research Foundations 148, **2023**, Chapter 9, pg. 252-275. <https://doi.org/10.21741/9781644902554-9>
- Cellulose based Bio-Nanocomposites: Tailoring and Applications, S.K. Shukla, **N.G. Giri**, V.K. Singh, A. Tewari "Recent Developments in Bio-Nanocomposites", Nova Science Publishers, Inc., USA, **2011**, Chapter 23, pg. 667-687, ISBN 978-1-61761-513-9 (eBook).

Research Papers:

- Scalable chlorination of polypropylene for structural modification and flame retardancy as coating materials of insulation cable, Sandeep Kumar, Bimal Chopra, Ankush Koundal, **Nand Gopal Giri**, Saroj Kr. Shukla, *Polymer-*

- Plastics Technology and Materials*, **2024**, doi.org/10.1080/25740881.2024.2363256, Impact factor 2.2, ISSN 2574-0881.
- Iodine/DMSO mediated one pot access of 1-aryl-2-(pyrazol-5-yl)ethane-1,2-diones via domino reaction from functionalized pent-2-ene-1,5-diones, Trisha Ghatak, Chandan Shah, Ismail Althagafi, **Nand Gopal Giri**, Mahendra Nath and Ramendra Pratap, *Organic & Biomolecular Chemistry*, **22**, **2024**, 1859-1870, Impact factor 3.2, ISSN 1477-0520.
 - 1,3-Dianionic annulations of ketones with ketene dithioacetals: a modified route to 3-aryl/cyclopropyl-5-thiomethyl-phenols and 1-(methylthio)-9,10-dihydrophenanthren-3-ols, Ranjay Shaw, Prasoon Prakash, Ismail Althagafi, **Nand Gopal Giri** and Ramendra Pratap, *RSC Advances* **13**, **2023**, 34299-34307, Impact factor 4.036, ISSN 2046-2069.
 - One Pot Synthesis of β -Ketoesters from Aryl Methyl Ketone via Ketene Dithioacetal, **Nand Gopal Giri**, Ismail Althagafi, Trisha Ghatak, and Ramendra Pratap, *ChemistrySelect* **8**(38), **2023**, doi.org/10.1002/slct.202302691 Impact factor 2.307, ISSN: 2365-6549.
 - Contemporary Advances of Electrochemical sensors in Forensic Applications, V.K. Singh, **N.G. Giri**, N.S. Abbas, S.K. Shukla, *Journal of Forensic Chemistry and Toxicology*, **6**(2), **2020**, 131-138, p-ISSN 2454-9363, e-ISSN 2455-8311.
 - Thermo- catalytic Conversion of Waste Polyethylene Bags into Value Added Products, Barak, Anil; Kumari Munni, Vanita Mishra, Divya, **Nand Gopal Giri**, Shukla, Saroj K, *Indian Journal of Chemical Technology* **26**(1), **2019**, 95-99, Impact factor 0.614 (JCR).
 - Analytical Aspects and Management of Antimony Poisoning- A Review, Ashok Kumar Jaiswal, **Nand Gopal Giri**, Madhuri Gupta, Anamika Jha, Raj Kumari Ojha, *Journal of Pharmaceutical Advanced Research*, **2**(1), **2019**, 452-457. eISSN 2581-6160.
 - Mercury Poisoning- A Review, A.K. Jaiswal, **Nand Gopal Giri**, Anil Kumar Jaiswal, Akanksha Priya, Rajesh Kumar, *Unique Journal of Medical and Dental Sciences*, **6**(2), **2018**, 1-6, Impact factor 4.153 (Cosmos), ISSN 2347-5579.
 - Forensic Applications of IR/FTIR, A.K. Jaiswal, **N.G. Giri**, Anil Kumar Jaiswal, Nilima Samal, P. Sharma, T. Millo, S.K. Gupta, *Journal of Forensic Chemistry and Toxicology*, **3**(1), **2017**, p-ISSN 2454-9363, e-ISSN 2455-8311.
 - Analytical Aspect with brief Overview of Depressants, Sandeep Kumar, **Nand Gopal Giri**, Ashok Kumar Jaiswal, Anil Kumar Jaiswal, *SMU Medical Journal*, **4**(1), **2017**, 142-167, Impact factor 3.835 (SJF), ISSN 2349-1604.
 - Analysis of Phosphine with different techniques, A.K. Jaiswal, **N.G. Giri**, Sanya Gaur, Anil Kumar Jaiswal, *Int. J. Med. Lab Res.*, **1**(2), **2016**, 17-23, ISSN 2456-4400.
 - Biodegradable polymeric nanostructures in therapeutic applications: Opportunities and challenges, S.K. Shukla, Sudheesh K. Shukla, Penny P. Govender and **N.G. Giri**, *RSC Advances*, **6**, **2016**, 94325-94351, Impact factor 3.840, ISSN 2046-2069.
 - Studying interaction of DDT with variety of organic solvents and developing some new solvent systems for separation of standard DDT by Thin Layer Chromatography, A.K. Jaiswal, S. Nagpal, **N.G. Giri**, M. Gupta, J. Kaur, *International Journal of Chemical and Analytical Science*, **3**(12), **2012**, 1668-1671, Impact factor 0.649, ISSN 0976-1209.
 - Spectroscopic and spectrometric studies of anion recognition with calix[4]pyrroles in different reaction conditions, **N.G. Giri**, S.M.S. Chauhan, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, **74**, **2009**, 297-304, Impact factor 2.163, ISSN 1386-1425.
 - Oxidation of polycyclic aromatic hydrocarbons with hydrogen peroxide catalyzed by Iron(III)porphyrins, **N.G. Giri**, S.M.S. Chauhan, *Catalysis Communications*, **10**, **2009**, 383-387, Impact factor 3.32, ISSN 1566-7367.
 - Development of New Solvent Systems for the Analysis of Chloropyrifos Poison Extracted from Blood, A.K. Jaiswal, **N.G. Giri**, M. Gupta, P. Kumar, M.P. Rejeetpaul, *Proceedings of the Indian National Science Academy*, **74**(4), **2008**, 173-177, Impact factor 0.396, ISSN 0370-0046.
 - Detection and Characterization of Kerosene in Fire Debris by Thin Layer Chromatography, A.K. Jaiswal, T. Millo, G.K. Gaur, R.C. Sharma, N. Lal, S.K. Mewar, **N.G. Giri**, *Amity Journal and Behavioural and Forensic Sciences*, **4**(1), **2008**, 79-83, E-ISSN 0973-9742.
 - Rosette formation by hydrogen bonding of 5,5-Dialkylbarbituric acids with 2- Amino-4,6-bis[5-(4'-

aminophenyl)porphyrinatozinc]-1,3,5-Triazines in solution, S.M.S. Chauhan, **N.G. Giri**, *Supramolecular Chemistry*, 20(8), **2008**, 743-752, Impact factor 2.132, ISSN 1061-0278.

Conference/Seminar/Faculty Development Programme/Workshop

Conference/Symposium/Seminar/Workshop Organization:

- Contributed as an **Organizer** of Webinar on "The Alzheimer's disease" Organized by Department of Chemistry, Shivaji College, University of Delhi on October 17, **2020**.
- Member**, Organizing committee of Two Days Interdisciplinary International e-Conference on "Self Reliant India" through inclusion of Science, Arts, Pharmacy, Teaching, Commerce, Humanities, Engineering and Technology-2020 ("SRI-SAPTCHET: 2020") organized by Nagarjuna Science and Environment Forum (N-SEF) in association with Mahatma Gandhi National Council of Rural Education (MGNCRE) in Collaboration with G.S. College Khamgaon, Buldana, Maharashtra from 2nd -3rd October **2020**.
- Contributed as an **Organizer** of Webinar on "The Contribution of DRDO in Prevention and Management of COVID-19 Pandemic" Organized by Department of Chemistry, Shivaji College, University of Delhi on September 26, **2020**.
- Contributed as an **Organizer** of Webinar on "National Education Policy (NEP)-2020 for Quality Higher Education" Organized by the Department of Chemistry, Shivaji College, University of Delhi on 19th September, **2020**.
- Contributed as **Co-Convenor** in National Conference on "Relationship between Chemical Sciences and Society (RCSS-2020)", held in Shivaji College (University of Delhi) from 16-17 January **2020**.
- Chaired the Session of Oral Presentation** in National Conference on Relationship between Chemical Sciences and Society (RCSS-2020), held in Shivaji College (University of Delhi) from 16-17 January **2020**.
- Member, Organizing committee of 9th National Conference on "Solid State Chemistry and Allied Areas (ISCAS - 2015)" held at Conference Centre at University of Delhi on 8-10 May **2015**.

Research Papers Presented in Conferences:

- "Effect of soil pH on germination and growth of Triticum aestivum and Zea mays", Kalash Gupta, Richa Arora, Ashwani Sharma, **Nand Gopal Giri**, won **Best Poster Award** in International Interdisciplinary virtual Conference on Drug, Disease and Development, Organized by Department of Chemistry, Mungasaji Maharaj Mahavidyalaya, Darwaha Maharashtra from 9th -10th December **2020**.
- "Thermo-catalytic Conversion of Waste Polyethylene Bags into Value Added Products", Barak, Anil; Kumari Munni, Vanita Mishra, Divya, **Nand Gopal Giri**, Shukla, Saroj K, won **Best Poster Award** in National Conference on Relationship between Chemical Sciences and Society (RCSS-2020), held in Shivaji College (University of Delhi) from 16-17 January **2020**.
- "Effect of soil pH on germination and growth of Zea mays" Gauri Bansal, Anjalika Malik, Tanya Goyal, Richa Arora, Ashwani Sharma, **Nand Gopal Giri**, National Conference on Relationship between Chemical Sciences and Society (RCSS-2020), held in Shivaji College (University of Delhi) from 16-17 January **2020**.
- "Effect of soil pH on germination and growth of Triticum aestivum" Sanjeevani Singh, Jai Laxmi Dewal, Prachi, Richa Arora, Ashwani Sharma, **Nand Gopal Giri**, National Conference on Relationship between Chemical Sciences and Society (RCSS-2020), held in Shivaji College (University of Delhi) from 16-17 January **2020**.
- "Effect of soil pH on germination and growth of Triticum aestivum and Zea mays" Manita, Neetu Yadav, Richa Arora, Ashwani Sharma, **Nand Gopal Giri**, 2nd National Conference on Emerging Trend and Future Challenges in Chemical Science (ETFC-2020), held in Kirori Mal College (University of Delhi) from 10-11 January **2020**.
- "Voltammetric Approach of Arsenic Determination in Serum Using scTrace Gold Electrode" Ashok Kumar Jaiswal, **Nand Gopal Giri**, TabinMillo, Sudhir Kumar Gupta, 13th Indo-Pacific Association of Law, Medicine and Science (INPALMS), held in Dhaka, Bangladesh from 9-13 December **2019**.
- "Chemical and Analytical Aspects of Stimulants in Crime Investigation: A Review" **Nand Gopal Giri**, Pallavi Chaudhary, A.K. Jaiswal, International Conference on Emerging Trends in Chemical Sciences (ICETCS), held in DDU Gorakhpur University Gorakhpur, 24-25 February **2018**.
- "Role of HPTLC in analysis of Depressants" **Nand Gopal Giri**, A.K. Jaiswal, S. Kumar, International Symposium for High-Performance Thin Layer Chromatography, 4-8 July **2017** Berlin, Germany.

- “Extraction, Isolation and Detection of Ethambutol in Blood using HPTLC Plates” A.K. Jaiswal, **Nand Gopal Giri**, S. Yadav, H. Mahto, S. Gupta, International Symposium for High-Performance Thin Layer Chromatography, 4-8 July **2017** Berlin, Germany.
- “Electrostatic interaction of cationic porphyrins with calix[4]arene and related heterocalix[4]arenes”, Pratibha Kumari, Tanuja Bisht, Bhasker Garg, **Nand Gopal Giri**, Jyoti Tanwar, Pradeep Singh Chauhan and S. M. S. Chauhan, 9th CRSI, National Symposium in Chemistry (NSC-9), February 1-4, **2007**, Department of Chemistry, University of Delhi, India.
- “Functionalized unsymmetrical metalloporphyrins in self-assembly”, **Nand Gopal Giri**, Shweta Agarwal and S. M. S. Chauhan, IUPAC sponsored second International symposium on Green / Sustainable Chemistry, 10-13 January, **2006**, Department of Chemistry, University of Delhi, India.
- “Biomimetic oxidation of Guggulsterone and related compounds with hydrogen peroxide catalyzed by iron(III)porphyrins in ionic liquids”, Anil Kumar, Nidhi Jain, **Nand Gopal Giri**, Sandeep Rana and S. M. S. Chauhan, ICOB-4 & ISCNP-24, IUPAC International Conference on Biodiversity and Natural Products: Chemistry and Medical Applications, 26-31 January **2004**, New Delhi, India.

Hands - on Training Programme:

- Short listed and Participated from India in “ANALYTICAL SKILL DEVELOPMENT COURSE (ASDC)-2015” held in Department of Chemistry, University of Helsinki, Finland from 09-20 Nov. **2015**, organized by ‘**The Technical Secretariat of the Organization for the Prohibition of Chemical Weapons (OPCW)**’; **winner of NOBLE PEACE PRIZE 2013**.
- Participated in one day hands-on training on ICT Tools for Science Educators & Students, SGTB Khalsa College, and University of Delhi on 18th December **2012**.
- Operated Electrospray Ionization Mass Spectrometre (ESI-MS) instrument from September 2004 to December 2006 in Department of Chemistry, University of Delhi.

Oral Presentations:

- “Synthesis of Ketedithiaacetals and its application for 2H-Pyranones” National Conference on Recent Trends in Chemistry and Nano-Biotechnology RTCN-**2022**, held on 13th December 2022 at Department of Chemistry, University of Delhi 110007.
- “Effect of soil pH on germination and growth of Triticum aestivum and zeamays” virtual International Conference on Chemical Advances of Sustainable Development CASD **2022**, Organized by Department of Chemistry, University College for Women, Koti, Hyderabad, held on 12-13 April 2022.

Resource Person/Mentor:

- Contributed as a **Resource Person** in the Inter-College Summer Training Program for UG students Organized by Department of Chemistry, Shivaji College, University of Delhi Under aegis of IQAC from 4-10 July **2024**.
- Contributed as a **Resource Person** in the Inter-College Laboratory Skill Training Programme for Laboratory Attendants/ Assistants of Chemical and Life Sciences Under the aegis of DBT Star College Scheme Organized by Shivaji College, University of Delhi from 8-12 Feb. **2021**.
- **Supervisor** in ‘Inter- College online Summer Training Program on the Virtual World of Chemistry’ Organised by Department of Chemistry, Shivaji College, University of Delhi, under the Aegis of DBT sponsored Star College Scheme from 1st July to 28th July **2020**.
- Contributed as **Mentor** in online summer training programme for UG students from 1st July to 28th July **2020**, held in Shivaji College under Aegis of “DBT Star College Scheme”.
- Contributed as a **Resource Person** in the National Conference on “Relationship between Chemical Sciences and Society (RCSS-2020)”, held in Shivaji College (University of Delhi) from 16-17 January **2020**.
- Contributed as a **Resource Person** in the Inter-College Laboratory Skill Training Programme for Laboratory Attendants/ Assistants of Chemical and Life Sciences Under the aegis of DBT Star College Scheme Organized by Shivaji College, University of Delhi from 27th November to 3rd December **2019**.
- Contributed as a **Resource Person** in the Intra-College Laboratory Skill Training Programme for Laboratory Attendants/ Assistants of Chemical and Life Sciences Under the aegis of DBT Star College Scheme Organized by

Shivaji College, University of Delhi from 20th to 24th May **2019**.

- Contributed as a **Resource Person** in the Lab Skill Training Workshop for Laboratory Attendants/ Assistants of Chemical and Life Sciences Organized by Shivaji College, University of Delhi from 10th July to 14th July **2017**.
- Contributed as a **Resource Person** in the Inspire science Camp 2015 for 10+2 students held under the aegis of Department of Science and Technology (DST), Government of India, Organized by Shivaji College, University of Delhi from 19th December to 23rd December **2015**.

Participations in Conferences/ Seminars:

- Participated in National Conference “MAX MEDICON 2017” organized by Max Hospitals in Patparganj Delhi from 21-22 Jan. **2017**.
- Participated in First WDC International Conference on “Empowerment of Women in Developing World” organized by Women’s Development Cell, Shivaji College University of Delhi in collaboration with Women’s studies and Development Centre, University of Delhi and National Institute of Disaster Management, Ministry of Home Affairs, Govt. of India, in University of Delhi on April 1-2, **2013**.
- Participated in one day hands-on training on ICT Tools for Science Educators & Students, SGTB Khalsa College, and University of Delhi on 18th December **2012**.
- Participated in the Academic Congress on “Enabling the Young: Redefining Education” organized by University of Delhi from 6-7 September **2012**.
- Participated in International Conference on “Nanomaterials and Nanotechnology” jointly organized by University of Delhi, VBRI press and International Association of Advanced Materials (IAAM), held in University of Delhi from 18-21 December **2011**.
- Participated in national workshop on “Role of Analytical Techniques in Biological and Environmental Sciences” organized by Indian Society of Analytical Scientists (ISAS) Delhi Chapter and Department of Chemistry Kirori Mal College, University of Delhi, 27-29 January **2011**, Delhi, India.
- Participated in national workshop on “Role of Analytical Techniques in Industry” organized by Indian Society of Analytical Scientists (ISAS) Delhi Chapter and Department of Chemistry Kirori Mal College, University of Delhi, 21-22 January **2010**, Delhi, India.
- Participated in 1st Indo-Danish DU-SDU seminar on “Emerging Trends in Interfacial Areas of Chemical, Biological and Environmental Sciences” organized by Department of Chemistry, University of Delhi and Department of Physics and Chemistry, University of Southern Denmark, 17-18 March **2008**, Delhi, India.
- Participated in 41st Annual Convention of Chemists, (Indian Chemical Society), 23-27 December, **2004**, Organized by Department of Chemistry, University of Delhi, Delhi, India.

Awards and Distinctions

- **Lectureship–National Eligibility Test (LS-NET)** June 2003, Award No. (F.No. 10-2(5)/2003 (I)–EU II).
- **Senior Research Fellowship (SRF), CSIR**, 2005 - 2008.
- **Junior Research Fellowship (JRF-NET, CSIR)** December 2002, Award No. (F.No. 2-56/2002 (II) EU II), conducted jointly by Council of Scientific and Industrial Research (CSIR) and University Grant Commission (UGC) for doing research in Indian Universities and CSIR laboratories.
- **Lectureship–National Eligibility Test (LS-NET)** June 2002, Award No. (F.No. 2-56/2002 (I) EU II).
- **Lectureship–National Eligibility Test (LS-NET)** Dec. 2001, Award No. (F.No. 2-48/2001 (II) EU II).

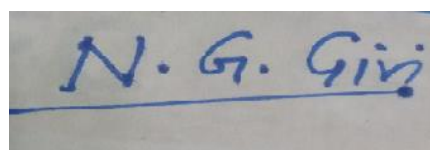
Association With Professional Bodies

- Life member of ‘International Scientific Research Organization for Science, Engineering and Technology (ISROSET)’.
- Life Member of ‘Indian Association of Solid State Chemists and Allied Scientists’.
- Life member of ‘Indian Society of Analytical Scientists’.

Refresher/ Orientation Courses

- Participated in Two Weeks online National Faculty Development Program (FDP) on “Digital Tools for 21st Century Teachers” organized by Guru Angad Dev Teaching Learning Centre, a centre under PMMMNMTT, MoE, Government of India from 10th to 23rd December **2020**.
- Participated in UGC-MHRDC Sponsored refresher course in Basic Science (IDC) organized by Jamia Millia Islamia, New Delhi from 5th to 19th November **2019**.
- Participated in UGC-MHRDC Sponsored refresher course conducted by ASC- Lucknow University Lucknow, from 1st to 23rd January **2018**.
- Participated in UGC-Sponsored refresher course conducted by CPDHE, University of Delhi, from 26th June to 16th July **2015**.
- Participated in UGC-Sponsored orientation programme (OR-64) held in Institute of Lifelong Learning, University of Delhi, from 18 November to 15 December **2010**.

Last updated May 2025.

A photograph of a handwritten signature in blue ink on a light-colored surface. The signature reads "N. G. Givi" and is underlined.

Signature of Faculty Member