**ACADEMIC AUDIT REPORT 2020-21**

**Name of the Department**: Chemistry

**Name of External Expert**: Prof. V. K. Sharma

**Address of External Expert**: Chemistry Department, University of Lucknow, Lucknow

**Special features of the Department**: The Chemistry Department of D.D.U. Gorakhpur University, Gorakhpur came into existence in the year 1958. The first Head of the Department was Prof. R. C. Mehrotra, a brilliant academician and recipient of Shanti Swaroop Bhatnagar award in 1965. The Chemistry Department is a prominent department of this University with its illustrious past. The department had been lucky in having on its roll a distinguished staff, to name a few, Prof. R. P. Rastogi, Prof. S. C. Tripathi, Prof. S. Giri, Prof. R. R. Yadav, Prof. Kehar Singh, Prof. N. B. Singh, Prof. M. L. Srivastava, Prof. K. D. S. Yadav, Prof. S. K. Sengupta and many more. Presently, the Department is led by Prof. Sudha Yadava who is a well-recognized Inorganic Chemist. Two of its ex-Heads of Department Prof. R. C. Mehrotra and Prof. R. P. Rastogi were appointed Vice Chancellors. Prof. Mehrotra was appointed Vice Chancellor of Delhi University and Allahabad University while Prof. Rastogi was appointed Vice Chancellor of B.H.U., Varanasi. On the basis of the recommendation of a high level expert committee, this department was selected by University Grant Commission to receive financial assistance under its COSIST (Committee on Strengthening Infrastructure in Science and Technology) Scheme so that the department could enhance its academic excellence. The research activity has always been the focal point of the Department. This is reflected by the fact that the Department has continued support from UGC under its Special Assistance Program (SAP) and Department has been assisted under DSA Phase-III. In order to strengthen the infrastructure for high level research and teaching the Department was also funded by DST-FIST financial grant. The quality of researches done by faculty members of the Department is also recognized by UP State Government and provided special funding under its Centre of Excellence program to enhance the research activities. This is further reflected by the fact that UGC under its BSR program sanctioned a number of research fellowships during the past 10 years to Ph.D. students for their Ph.D. degree in the Department.

**Major Achievements**: A number of research projects from different funding agencies such as INSA, UGC, CSIR, UPCST, DST, DBT, DRDO, ICAR etc. are being run in the department for conducting research in different areas such as Organometallic Chemistry, Coordination Chemistry, Macrocyclic Chemistry, Ion Transport mechanism in solids & Liquids, Synthetic & Spectroscopic aspects of metalloorganic compounds with biologically relevant N-heterocyclic, Bioinorganic Chemistry, Environmental Chemistry, Chemistry of Natural Products including studies on medicinal and essential oils, Bioorganic Chemistry, Synthetic Methodology using New reagents, Microwave Assisted Organic Synthesis, Heterocyclic Chemistry, Computational Chemistry, Kinetics & mechanism of catalysed and uncatalysed ligand substitution reactions, Adsorption of sugars & related polyhydroxy compounds onto various surfaces, Electro catalysis of oxygen evolution/reduction, Ion-ion & Ion Solvent interactions, Polymer Chemistry & Ion Exchange studies and many more. Faculty members of the Department have been contributing substantially to the chemical literature by publishing their research articles consistently in reputed peer reviewed journals. The Department is dedicated to maintain its reputation as an outstanding Chemistry Department on the basis of the rigorous curriculum and the quality of research. The Chemistry faculty is committed to encourage students to come up with innovative ideas and fulfill their dreams by preparing themselves most suited for the competitive global market.

**Main Strengths of the Department**: This is the largest department of the science faculty with undergraduate, postgraduate and research scholars. It imparts teaching both to the Biology as well as Mathematics group students. It forms a subject combination with every subject in the science faculty. Right from the beginning, the faculty worked with great enthusiasm and dedication to build up this department which is now famous all over India as one of the best place for chemical education and advanced research at the University level. All the faculty members are actively involved in teaching, learning and research. Majority of faculty members have interactions with renowned scientists in USA, UK, Germany, Belgium, Israel, Australia and Japan and some of them have worked in World’s renowned laboratories. Several students of this Department have been awarded post-doctoral fellowship in foreign countries where they have very creditably proved their worthiness. Alumni of this Department are spread all over the world and have occupied glorious positions. Additionally, they have also marked their presence abroad at reputed institution and industries. Every year at least one refresher course is organized in the Department. Seminars and Conferences are the regular features of the Department. Recently notable National and International Seminars were organized in the Department. Several reputed scientists/ professors were invited to deliver their talk in their specific field of interest that were helpful for students

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**Weakness/ Limitations**:

• Inadequate lab space and absence of safety regulations especially regarding handling and disposal of chemical and biochemical wastes

• Lack of space and trained manpower to maintain high end research facilities available at the department

• More focus needed in association with Career Development Centre for providing summer internship and industrial training/opportunities to undergraduate, postgraduate and PhD students

**Future Plans**: The Department of Chemistry intends to assume a leadership role in teaching as well as research. The curriculum is rigorous and continues to update the concepts on a regular basis to meet the demands of the ever-extending, interdisciplinary and diverse nature of chemical sciences. The faculties are committed in providing thorough training to students so that they become successful entrepreneurs, scholars, scientifically literate citizens and leaders of future and will continue to make significant contributions and impact on chemical education, teacher preparation, and professional development in the region and also for the country. The commitment of faculties to excellence in research has transformed the department during last decade and the new generation of highly professional teachers and researchers will continue to strive for the highest possible standards. Cultivating ties with industries will be one of the priorities in the future course of actions. In short, the Department will strive to create a collegial, collaborative, and supportive environment that enrich teaching and learning, strengthen scholarship, and encourage professionalism.

**Suggestions for Improvement or Future Scope:**  The reviewer observed that the Department of Chemistry, D.D.U. Gorakhpur University, Gorakhpur has been doing exceedingly well both in teaching and research. However, they also pointed out that both the teaching and research laboratories in the department need urgent attention in view of severely limited laboratory space, non-availability of adequate safety measures such as fume hoods and proper storage of chemicals and other infrastructures. The reviewer felt that productivity of the department in research (both in terms of quality and quantity) would substantially increase if adequate facilities are provided. The safety measures should be updated and laboratory waste management rigorously implemented. In case of teaching laboratories, enough trained personnel should be present in the laboratories including computer technicians. Augmentation of instrumental facilities like NMR was also suggested. Teaching and research activities were noted as the prime activities of faculty members and departmental administrative assignments were suggested to be kept a minimum so that a faculty member can devote more time for academic activities. The dissemination of knowledge, current developing perspectives and ideas amongst chemists in both academia and industry interaction by way of joint research and development projects in chemistry and related areas of chemistry has been undertaken.

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