SHANTI PRASAD JAIN COLLEGE, SASARAM

DEPARTMENT OF CHEMISTRY

Welcomes

NAAC Peer Team Members
(19th September, 2024)

Presentation

Dr. Jai Prakash

HOD

Department of Chemistry

About the Department

- The **Department of Chemistry** was established soon after the foundation of the S. P. Jain College, Sasaram in **1952.**
- With the passage of time, the Department has been flourishing under the able leadership and guidance of many esteemed academicians colleagues of the chemistry department.
- At present, the department offers **graduation** and **post-graduation** courses.
- Not only academic excellence, faculties and Ph. D. scholars of the department also actively kept pace with research in various frontier areas of chemistry.
- Present course curriculum offered at the department prepares students to pursue academic and professional career of their own choice for higher studies and industries.

Infrastructural Facilities

Departmental library

- Reasearch laboratory.
- 3 Well equipped student laboratories.
- 1 Instrument lab.
- 1 store room with chemical inventory.
- Rich departmental library with nearly 400 books related to all branches of chemistry.


PG Laboratory

chemical inventory


UG Laboratory


Reasearch laboratory

Mission

Our mission is to address the most pressing chemical challenges of our time while nurturing the next generation of innovative scientist and leaders. To advance the intellectual, technological, culture and economic condition of state, region and nation through the discovery and development of new knowledge in the field of chemistry. Maintain graduate and undergraduate teaching and research programs to develop the next generation of academics, industrial and government laboratory chemist who will be called upon to solve new problem.

Vision for the Future

➢ Research

Provide relevant knowledge in specific departmental emphasis areas (nano-science, material science & biological sciences) through peer-reviewed publications and conference proceedings.

➢ Postgraduate & Undergraduate Education

Provide students with opportunities to engage in discovery and development of new knowledge, while also developing critical thinking skills and gaining a foundation of basic chemical knowledge necessary for a career in chemistry.

Particulars	**P.G.**	**U.G.**
Program offered System	Semester System	CBCS System
Course offered	M.Sc. (Chemistry)	B.Sc. (Chemistry)
Course Approved Year	2001	1952
Students Sanctioned Seat	39	200
Course Duration	2 Years	4 Years
Academic Session	2023-25	2023-27
Current Admitted Student	41	174

Program Outcomes

PO1: Professional knowledge: Acquire comprehensive knowledge of major concepts, theoretical principles and experimental findings of various subjects in pure sciences.

PO2: Critical thinking and Cognitive skills: Convey the intricate science information effectively and efficiently, analyze and solve the problems related to plants, animal sciences without relying on assumptions and guesses.

PO3: Environment and sustainability: Understand the impact of the scientific solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO4: Effective Communication: Demonstrate familiarity with and will be able to analyze both verbally and in writing issues and forms of contemporary art with a clear understanding of historical precedents.

PO5: Instruments and Experiments: Acquire the skills in handling scientific instruments, planning and performing in laboratory experiments and drawing logical inferences from the scientific experiments.

PO6: Research and Analysis: Demonstrate analytical skill and proficiency in a range of tools and techniques used in research in science and interdisciplinary programmes.

PO7: Employability and higher Education: Show proficiency in professional, employability and develop soft skills required for higher education and placements.

PO8: Ethics: Imbibe ethical, moral and social values in personal and social life leading to highly cultured and civilized personality in the field of science.

PO9: Science and Society: Apply reasoning acquired by the scientific knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional science practice.

PO10: Interdisciplinary Learning: Integrate academic curriculum with other co-curricular goals, such as career development, life-long learning, develop interdisciplinary learning and opportunity to extend their knowledge across all disciplines.

PO11: Nation Building: Introspect and evolve into dynamic and creative individuals capable of socially productive, constructive actions that positively impact our Nation and the World at large.

Programme Specific Outcomes

PSO1: Gain the knowledge of Chemistry through theory and practical.
PSO2: Explain nomenclature, stereochemistry, structures, reactivity, and mechanism of the chemical reactions.
PSO3: Identify chemical formulae and solve numerical problems.
PSO4: Use modern chemical tools, Models, Chem-draw, Charts and Equipments.
PSO5: Know structure-activity relationship.
PSO6: Understand good laboratory practices and safety.
PSO7: Develop research-oriented skills.
PSO8: Comprehend and handle the sophisticated instruments/equipments.
PSO9: Acquire awareness towards gender, environment, sustainability, human values, and professional ethics and understand the difference between acting, responding, reacting to various social issues.

About the Faculty

Faculty Strength

Designation	Sanctioned	Filled
Professors	06	Nil
Associate Professors		Nil
Assistant professor		02
Guest Faculty		02

Permanent Teacher - 02

Guest Teacher - 02

Total Full Time Teachers - 04

Permanent Teachers Profiles

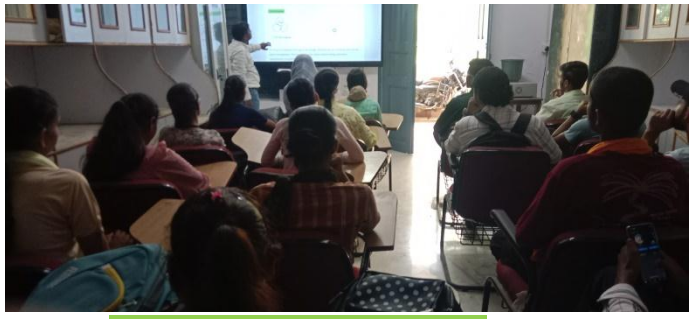
Names	Qualification	Designation	Years of Experience	Total No. of Ph.D. Enrolled
Dr. Jai Prakash Since 01/11/2017	**Ph.D., CSIR- NET**	**Assistant Professor**	**06 Years**	01
Dr. Shyam Raj Yadav Since 01/11/2017	**Ph.D., CSIR-JRF**	**Assistant Professor**	**06 Years**	01

Guest Teachers Profiles

Name	Qualification	Designation	Years of Experience
Dr. Manju Kumari	Ph.D.	Guest Faculty	03 Years
Dr. Sushma Kumari	Ph.D.	Guest Faculty	03 Years

- Total No. of Staff – 00
- No. of Technical Staff – 00
- No. of Non-Technical Staff – 00

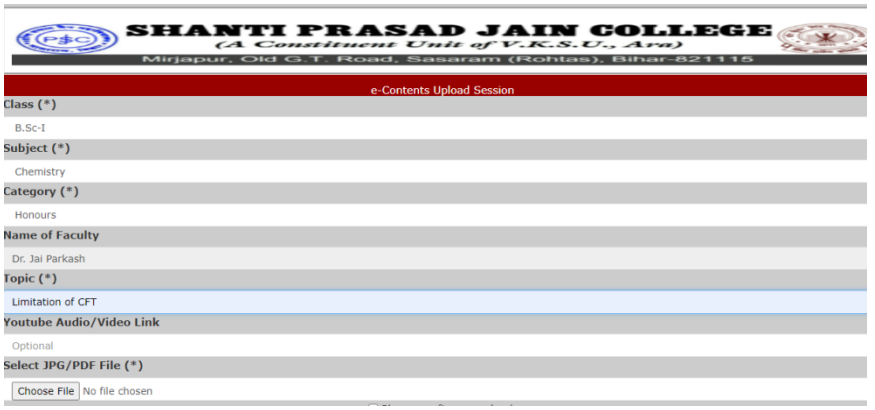
Teaching methods adopted by faculties



ICT enabled

Interactive sessions

Conventional



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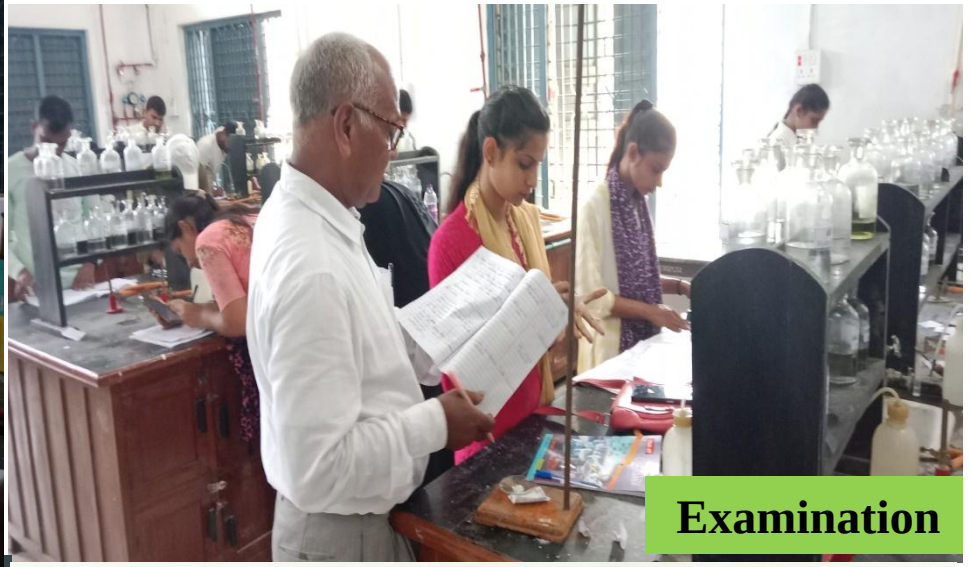
Practical sessions



Examination

Lab Classes

Demonstration

Research & Publications

Books/Edited Volumes/Chapter (2017- till Date)

Sl.No.	Name of the Teacher	Title of the Books/Edited Volumes/Chapter	Year of Publications
1.	Dr. Shyam Raj Yadav	**New Dimensions in Carbon Based Nanomaterials for Green Energy Applications:** Applications of carbon-based nanomaterials in CO2 reduction and capture (Chapter 15) **Publisher: IEEE Wiley, USA**	**2024**
		Sodh Sanchayan: Application And Toxicity Of Metallic Nano Particles Synthesised Via Green Route **Publisher: Rudra. New Delhi**	**2023**
2.	Dr. Jai Prakash	**New Dimensions in Carbon Based Nanomaterials for Green Energy Applications:** Applications of carbon-based nanomaterials in CO2 reduction and capture (Chapter 15) **Publisher: IEEE Wiley, USA**	**2024**
		Sodh Sanchayan: Concept Of Nano Sciencs And Nano Technology **Publisher: Rudra. New Delhi**	**2023**
3.	Dr Hanuman Singh	**Fundamental Sonochemistry** **Publisher: Kishor Vidya Niketan**	**2020**

Articles/Conferences/Seminars (2017- till Date)

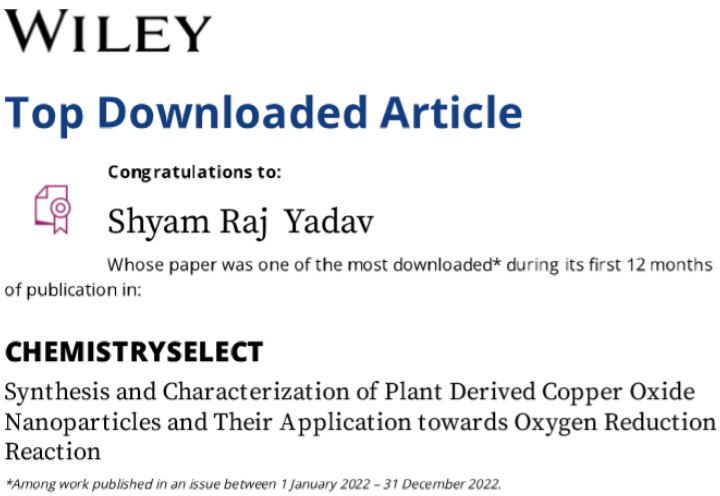
Sl.No	Name of the Teacher	Total No. of Article/Research Paper	Total No. of Paper in National/International conference
01.	Dr. Jai Prakash	International Article-03	01 National 03 International
02.	Dr. Shyam Raj Yadav	International Article-05	01 International

List of Publications

(2017- till Date)

1. Green Synthesis of Silver Nanoparticles using *Eranthemum Pulchellum* (Blue Sage) Aqueous Leaves Extract: Characterization, Evaluation of Antifungal and Antioxidant Properties, Jai Prakash, Himanshu Shekhar, Shyam Raj Yadav, Abhishek Kumar Dwivedy, Vijay Kumar Patel, Shikha Tiwari, Niraj Kumar Vishwakarma**, Biomed Biotechnol Res J** 2021;5:222-8. https://doi.org/10.4103/bbrj.bbrj_63_21 (IF-1.3)

2. Synthesis and characterization of plant derived copper oxide nanoparticles and their application towards oxygen reduction reaction, Jai Prakash, Himanshu Shekhar, Shyam Raj Yadav, Piyush Kumar Sonkar, Narvadeshwar Kumar, **ChemistrySelect** 2022;7: e202103594 (1-6). https://doi.org/10.1002/slct.202103594 (IF-1.9)


WILEY

Top Downloaded Article

Congratulations to:

Shyam Raj Yadav

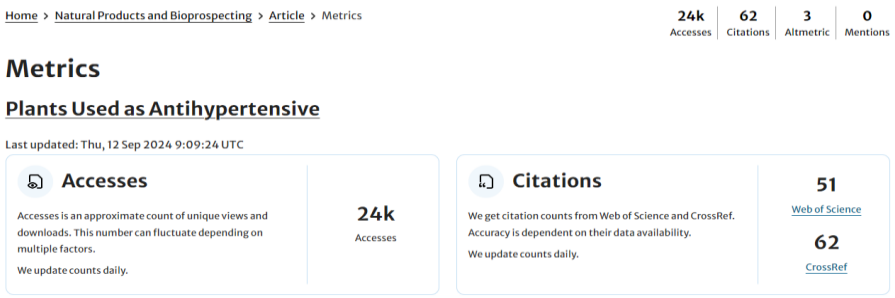
Whose paper was one of the most downloaded* during its first 12 months of publication in:

CHEMISTRYSELECT

Synthesis and Characterization of Plant Derived Copper Oxide Nanoparticles and Their Application towards Oxygen Reduction Reaction

*Among work published in an issue between 1 January 2022 – 31 December 2022.

3. Plants Used as Antihypertensive, Tarawanti Verma, Manish Sinha, Nitin Bansal, Shyam Raj Yadav, Kamal Shah, Nagendra Singh Chauhan, **Natural Products and Bioprospecting** 2021;11:155–184. https://doi.org/10.1007/s13659-020-00281-x (IF-4.8)



4. A Review on Coronavirus Disease and Potentially Active Drugs Targeting Coronavirus, Tarawanti Verma, Manish Sinha, Nitin Bansal, Shyam Raj Yadav, Kamal Shah, Nagendra Singh Chauhan, **Biomed Biotechnol Res J** 2021;5:110-20. https://doi.org/10.4103/bbrj.bbrj_14_21 (IF-1.3)

5. Qualitative analysis of Phytochemicals Present in Aqueous Leaves Extract of Eranthemum pulchellum, Shyam Raj Yadav, Kumari Rinki, Manisha Kumari and Jai Prakash, **Journal of Applicable Chemistry** 2024:13 (4):528-537. http://www.joac.info/AbstractPaper/2024/4-13-3-2A.pdf (Peer reviewed).

Faculties Participation in Refresher/Orientation/FDP

Name of the Teacher	Total No. of Refreshers	Total no. of Orientation
Shyam Raj Yadav	02	01
Jai Prakash	02	01

Faculties as Resource person at other institutions

Dr Jai Prakash

- Delivered lecture in **Dr. Satyapati Sahay memorial lecture** series on 23/10/2019 at

P G department VKSU, Ara.

- Delivered invited lecture at RADFM-2019 at **H D Jain College, Ara** on 09/12/2019.

Dr Shyam Raj Yadav

- Delivered lectrure in student induction program at **Shershah College, Sasaram** on 21/08/23

Activities Conducted by the Department

Seminars	Date	Details of Recourse Person
Green House Effect	07/09/2019	Dr Ram Tawakya Singh (VKSU, Ara) Dr. B N Roy (Magadh University)
World Earth Day Celebration	22/04/2021	Dr. Hanuman Singh (VKSU, Ara)
World Water Day	22/03/2022	Dr. D K Paul (Patna University)
IPR: Awareness Program	17/08/2023	Dr Jai Prakash (VKSU,Ara)
Green House Effect	20/02/2020	Dr. Birendra Kumar (Magadh University)
Plantation drives		

IPR: Awareness Program

World Water Day

World Earth Day Celebration

Green House Effect II

Green House Effect I

Plantation

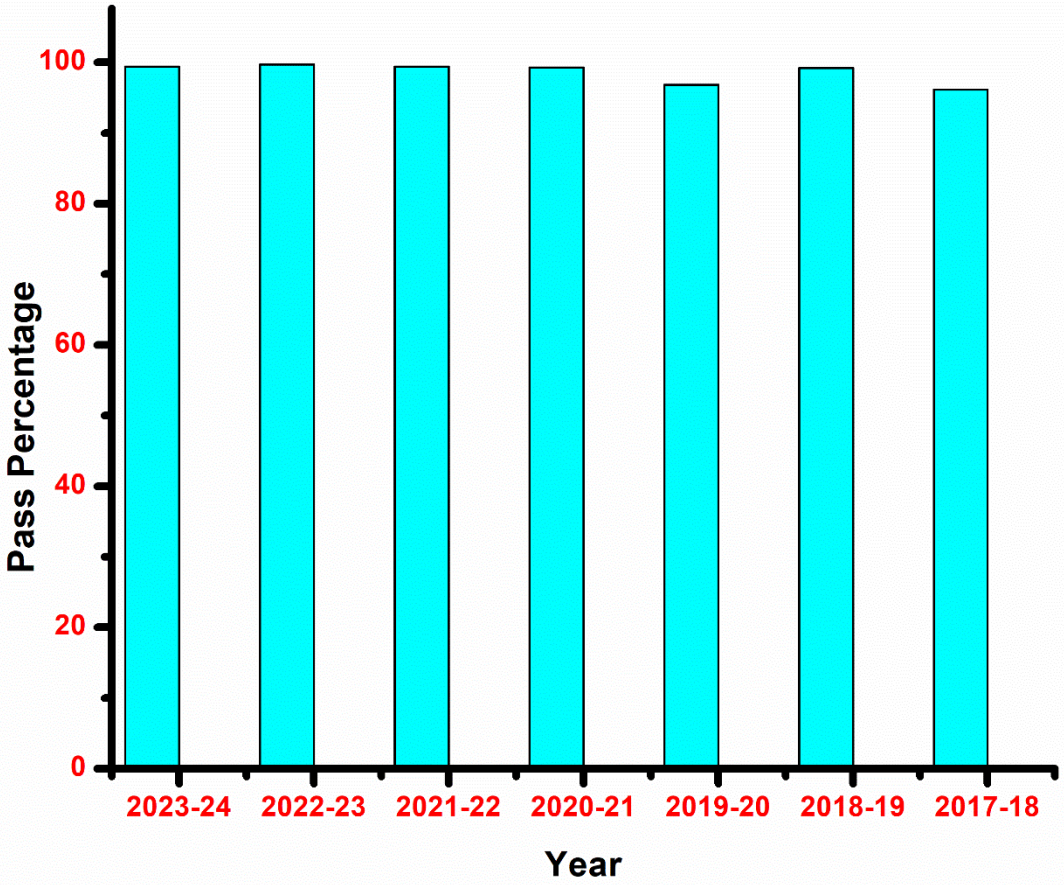
ACADEMICS

Enrolment Position in U.G Programme
Session - 2017-18 to 2023-24

Session / Year	Part I	Part II	Part III	Total
2023-24	NA	NA	172	172
2022-23	200	165	165	530
2021-22	200	158	177	535
2020-21	200	198	150	548
2019-20	200	121	95	416
2018-19	131	142	132	405
2017-18	142	157	181	480

Session / Year	Total No. of Appeared Students in Final Year	Total No. of Pass Student	Overall Pass Percentage
2023-24	172	171	99.4
2022-23	165	160	99.7
2021-22	177	176	99.4
2020-21	150	149	99.3
2019-20	95	92	96.8
2018-19	132	131	99.2
2017-18	181	174	96.13

U.G. Pass Percentage Final Year Result Analysis



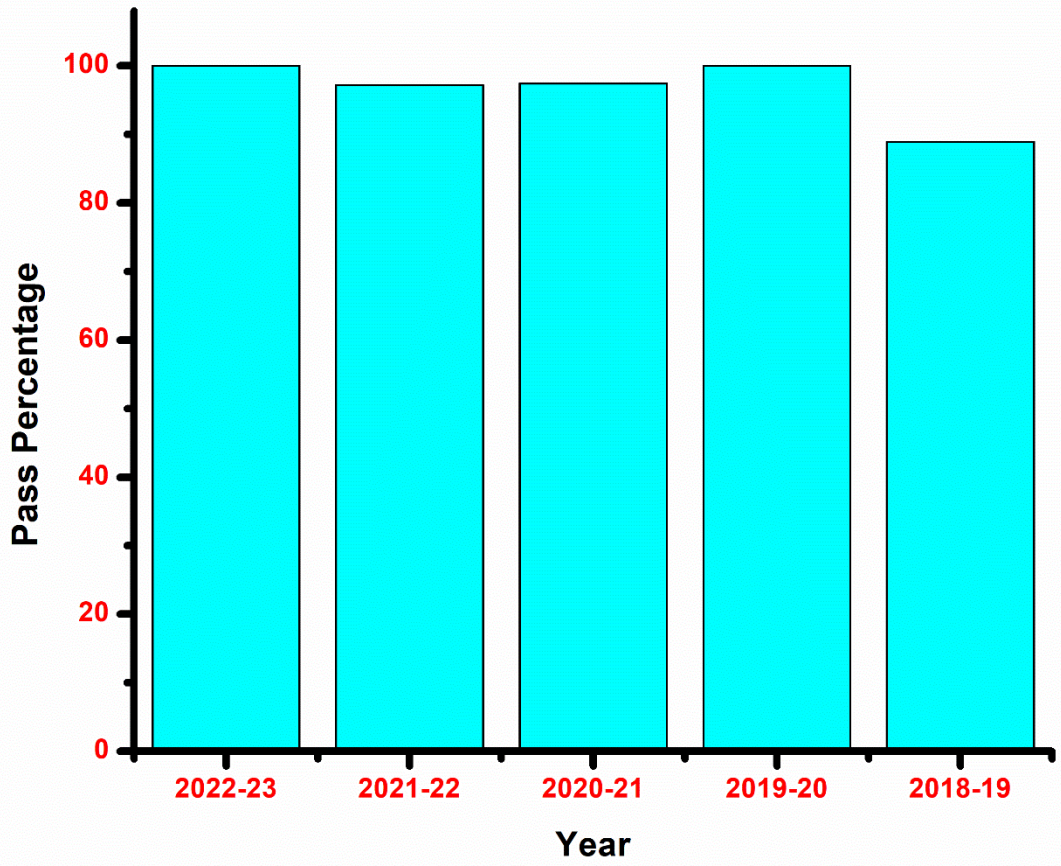
Enrolment Position in P.G. Programme
Session - 2017-18 to 2023-24

Session / Year	Part –I / Sem-I	Part –II /Sem-III	Total
2023-24	43	39	82
2022-23	44	34	78
2021-22	40	38	78
2020-21	42	39	81
2019-20	45	45	90
2018-19	42	47	89
2017-18	30	24	54

P.G. Pass Percentage Final Year
Session - 2017-18 to 2023-24

Session / Year	Total No. of Appeared Students in Final Year	Total No. of Pass Student	Overall Pass Percentage
2023-24	Appearing		
2022-23	32	32	100
2021-22	36	35	97.2
2020-21	39	38	97.4
2019-20	38	38	100
2018-19	27	24	88.9

P.G. Pass Percentage Final Year Result Analysis



Topper/Rank of our college U.G Students in University/District

Sl. No.	Session	Name of the Students	University Roll. No	Pass Percentage
1	2023-2024	Akansha Kumari	213011102002	72.8
2	2022-2023	Aditya Kumar	203010502008	70.8
3	2021-2022	Amarjeet Kumar	193010502015	70.6
4	2020-2021	Rajesh Kumar	183014020123	70.1
5	2019-2020	Diwakar Kuamar Mishra	2173010225	68.5
6	2018-2019	Gaytri Pandey	SG2163010020046	76.9
7	2017-2018	Shreya Gautam	301020020151	71.9

Topper/Rank of our college P.G. Students in University/District

Sl. No.	Session	Name of the Students	University Roll. No	Pass Percentage
1	2022-2023	Rishi Devashish	21301222321	7.81
2	2021-2022	Ruchika Jaiswal	2030102029	7.69
3	2020-2021	Mausam Kaur	1930102020	7.81
4	2019-2020	Jaya	1930102145	8.19
5	2018-2019	Asra Rahman	180301003080	72.5

Enrolment Position in Current Session
Session – 2023-24 (24-25)

Session / Year 2023-24	U.G		P.G.	
	Male	Female	Male	Female
Part I/Sem I	132	68	25	13
Part II/ Sem-III	128	45	17	20
Part III	115	49		
Total	375	162	42	33
Total (M+F)	537		75	
Grand Total (U.G & P.G)	612			

Our Distinguished Alumni Members

Sl. No.	Name of the Alumni with Address	Pass out Session	Organization Name/Address	Designation
01.	Dr. Hanuman Singh	1973-1975	V. K.S. University, Ara	Associate Professor
02.	Dr. Vikash Kumar Lal	2004-2006	Bihar Government	PGT Teacher
03.	Jaya	2018-2020	Bihar Government	Supply Inspector
04.	Ruchika Jaiswal	2019-2021	Bihar Government	Waste Management Officer
05.	Raghavendra Pathak	2018-2020	Macleods Pharma	Analyst
06.	Renu Kumari	2004-2006	Bihar Government	PGT Teacher

Best Practices of the Departments

- Continuous student progress assessment .
- Adopt green practices in department labs .
- Students are encouraged to follow safety protocols in labs.
- Encouraging students to use helmets while driving.
- Promoting awareness against tobacco use.
- Supporting the Swachh Bharat Abhiyan initiative.
- Regular interaction with former students.
- Encouragement of students towards research.

SWOC Analysis

Strength

- UG and PG courses under CBCS curriculum.
- Well established functional labs and Research lab.
- Departmental library.
- ICT mediated teaching.
- Awareness for Academics and Industry careers.

Weakness

- Scarcity of teaching and non-teaching staffs.
- Library has to be enriched as per newly implemented courses.
- Research lab requires more instruments.
- More smart classes required.
- Adequate infrastructure required in ratio of students enrolled.

Opportunities

- Centre for higher education
- Availability of Research facilities.
- Enriched departmental and central library.
- ICT class rooms
- Faculties with sound academic and research knowledge.

Challenges

- Poor student teacher ratio.
- Lack of infrastructure.
- Less supporting staffs.
- Less class rooms.
- Lack of adequate lab facility.

Future Plan of the Department

- To develop research temperament.
- To establish the Nano-chemistry lab.
- To organize the Seminar/workshop on emerging topics.
- Extension of specialized lab to promote industrial chemistry for job opportunities as per demand.

Department of Chemistry