

3. Evaluative Report of the Department

1. Name of the Department
Department of Chemistry
2. Year of establishment
1960
3. Is the Department part of a School/Faculty of the university?
Yes, Department of Chemistry is a part of PG School of Physical Sciences and Faculty of Science
4. Names of programmes offered (UG, PG, M. Phil., Ph.D., Integrated Masters; Integrated Ph.D., D. Sc., D.Litt., etc.):
Department offers UG (Pass) and (Hons.) courses in Chemistry at two constituent colleges of this university while PG, Ph. D. and D.Sc. programmes are offered in the Department of Chemistry itself.
UG – B.Sc. (Pass course)
 B.Sc. (Honours)
PG - M. Sc. in Chemistry
Ph. D. in Chemistry
D. Sc. in Chemistry
5. Interdisciplinary programmes and departments involved:
Instrumentation and Research facilities available at this center are made available to the students of other departments in the University as and when required. Further, the faculty provides project-mentorship to the students of other departments/centers of the University. Some of faculty members of this department are also participating in programmes run by CCT.
6. Courses in collaboration with other universities, industries, foreign institutions, etc.
Department of Chemistry has informal collaboration with other universities and pharma industry for research work related to Ph.D. degree. Several research scholars visited other Universities for completing their work. Mr. Kirti Kr Shah (Senior Research Fellow, Chemistry) worked at Institute of Biochemistry, EMA University of Greifswald, Germany (2009) on Short-Term DAAD Fellowship for completing his Ph.D. work)
7. Details of programmes discontinued, if any, with reasons
No programme has been discontinued during 2009-15.
8. Examination System: Annual/Semester/Trimester/Choice Based Credit System:
University has adopted annual scheme for UG exams in Chemistry and semester system with Choice Based Credit System for PG exams in Chemistry. Department is also running one semester Pre Ph.D. course work in Chemistry.

9. Participation of the department in the courses offered by other departments

Instrumentation and Research facilities available at this center are made available to the students of other departments in the University as and when required. Further, the faculty provides project-mentorship to the students of other departments/centers of the University. For Ph.D. work, interdepartmental collaboration exists with Botany, Zoology and Physics department.

- Dr. C.P.S. Chandel is associated as Additional Coordinator and Prof. I.K. Sharma had been associated as Coordinator in Univ. Centre of Computer Science and Information Technology.
- Dr. Neelima Gupta is associated as Subject Coordinator Chemistry at CCT. Several faculty members (Prof Anshu Dandia, Dr. RT Paradasani, Dr. R. Pandey, Dr. M. Nagar, Dr. P. Pardasani, Dr. Alka Sharma, Dr. D.K. Sharma, and Dr. Neelima Gupta) of Chemistry Department have been involved in teaching at CCT during 2009-2013.

10. Number of teaching posts sanctioned, filled and actual (Professors / Associate Professors / Asst. Professors / others)

Following is the details of faculty in this department:

	Sanctioned	Filled	Actual (including CAS & MPS)
Professor	04	1	1 + 1(CAS)
Associate Professors	13	Nil	21 (CAS)
Asst. Professors	64	54	33
Asst. Prof. under UGC-Faculty Recharge Program	-	-	03

11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance:

Following is the details of faculty in this department:

Name	Qualification	Designation	Specialization	No. of Years of Experience	No. of Ph.D. Awarded 2009-2015
Prof. Anshu Dandia	M.Sc, Ph.D.	Professor	Organic Synthesis, Green Chemistry, Nanomaterials and Catalysis	33	10
Prof. Sanjiv Saxena	M.Sc, Ph.D.	Professor	Synthetic Inorganic Metallo-organic and Organometallic Chemistry	32	2
Dr. Mithlesh Agrawal	M.Sc, Ph.D.	Associate Professors	Coordination Chemistry & Synthetic Inorganic	18	4

Dr. Sangeeta Bhargava	M.Sc, Ph.D.	Associate Professors	Natural Products & Synthetic Organic Chemistry	18	2
Dr. C.P.S. Chandel	M.Sc, Ph.D.	Associate Professors	Electro Chemistry, Environmental Chemistry	31	6
Dr. M.P. Dobhal	M.Sc, Ph.D.	Associate Professors	Synthetic Organic Chemistry & Natural Products	31	2
Dr. Neelima Gupta	M.Sc, Ph.D.	Associate Professors	Synthetic Organic Chemistry, Phosphorus Heterocycle, Computational Chemistry	20	8
Dr. Asha Jain	M.Sc, Ph.D.	Associate Professors	Synthetic Inorganic and organometallic Chemistry	18	2
Dr. Meenakshi Jain	M.Sc, Ph.D.	Associate Professors	Synthetic Organic heterocyclic Chemistry	18	1
Dr. B.S.Joshi	M.Sc, Ph.D.	Associate Professors	Inorganic Chemistry	29	4
Dr. Rahul Joshi	M.Sc, Ph.D.	Associate Professors	Heterocyclic Chemistry	18	2
Dr. Y.C.Joshi	M.Sc, Ph.D.	Associate Professors	Synthetic Organic Chemistry & Natural Products	31	2
Dr. C. L. Khandelwal	M.Sc, Ph.D.	Associate Professors	Kinetics & Reactions Mechanism	29	5
Dr. Vinita Khatri	M.Sc, Ph.D.	Associate Professors	Heterocyclic Chemistry	29	2
Dr. Mahendra Kumar	M.Sc, Ph.D.	Associate Professors	Heterocyclic Chemistry	31	7
Dr. Alka Sharma	M.Sc, Ph.D.	Associate Professors	Electrochemistry, Corrosion science, Bioreduction of metal salts-GNPs	18	3
Dr. D.K. Sharma	M.Sc, Ph.D.	Associate Professors	Electrochemistry	18	7
Dr. Mahesh Sharma	M.Sc, Ph.D.	Associate Professors	Natural Products	21	2
Dr. Y.P.Singh	M.Sc, Ph.D.	Associate Professors	Organometallic and metallo Organic of main group elements	31	2
Dr. A.K. Varshney	M.Sc, Ph.D.	Associate Professors	Coordination Chemistry	29	4 (2011-15)

Dr. Sarita Varshney	M.Sc, Ph.D.	Associate Professors	Electrochemistry / Coordination Chemistry	18	4
Dr. Jyoti Sharma	M.Sc, Ph.D.	Associate Professor	Organometallic and metalloorganic Chemistry	15	3
Dr. Nighat Fahmi	M.Sc, Ph.D.	Associate Professor	Coordination Chemistry	15	07
Dr. Debanjan Guin	M.Sc, Ph.D.	Asstt. Prof. UGC-Faculty Recharge Prog.	Target Oriented Synthesis of Nanomaterials	01	--
Dr. Ashok Kumar Basak	M.Sc., Ph.D.	Asstt. Prof. UGC-Faculty Recharge Prog.	Natural Product and Organo-catalysis	08 months	--
Dr. Swagat Mohapatra	M.Sc., Ph.D.	Asstt. Prof. UGC-Faculty Recharge Prog.	Materials for Electronics and energy Applications	08 months	--
Dr. Renuka Jain	M.Sc, Ph.D.	Professor (Retd. 2012)	Synthetic Organic & Natural Products Chemistry	-	9
Dr. R.V. Singh	M.Sc, Ph.D.	Professor (Retd. 2013)	Bioinorganic Chemistry, Organometallic Chemistry	-	15
Dr. IK Sharma	M.Sc, Ph.D.	Professor (Retd. 2012)	Electrochemistry	-	-
Dr. D.C. Gautam	M.Sc, Ph.D.	Professor (Retd. 2011)	Heterocyclic Chemistry	-	-
Dr. Geeta Seth	M.Sc, Ph.D.	Professor (Retd. 2012)	Heterocyclic Chemistry	-	7
Dr. V. Sareen	M.Sc, Ph.D.	Professor (Retd. 2014)	Heterocyclic Chemistry	-	1
R. Pandey	M.Sc, Ph.D.	Assoc. Professor (Retd. 2013)	Electrochemistry	-	4
Dr. S.P. Bansal	M.Sc, Ph.D.	Assoc. Professor (Retd. 2011)	Environmental Chemistry	-	-
Dr. P. Pardasani	M.Sc, Ph.D.	Assoc. Professor (Retd. 2013)	Organometallic Chemistry	-	3
Dr. R.T. Pardasani	M.Sc, Ph.D.	Assoc. Professor (Joined CURaj)	Heterocyclic Chemistry	-	5

Dr. U. Gupta	M.Sc, Ph.D.	Assoc. Professor (Retd. 2012)	Heterocyclic Chemistry	-	1
Dr. A.K. Yadav	M.Sc, Ph.D.	Assoc. Professor (Retd. 2012)	Organic Synthesis, Heterocyclic Chemistry	-	3
Dr. Meena Nagar	M.Sc, Ph.D.	Assoc. Professor (Retd. 2014)	Organometallic synthesis and Nano material characterization	-	8
Dr. Anoop Singh Meena	M.Sc.Ph.D.	Asst Prof	Physical Chemistry; Photo Chemistry & Electro-Chemistry	3 Years	--
Dr. Bhanupriya Mordhiya	M. Sc. Ph.D.	Asst Prof	Inorganic Chemistry and Environ-Industrial Chemistry		--
Dr. Dinesh Kumar Jangid	M.Sc. , Ph.D.	Asst Prof	Organic Chemistry; Heterocyclic Synthesis	08 months	--
Dr. Jaya Mathur	M.Sc., Ph.D.	Asst Prof	Organic Chemistry; Natural Product Chemistry	10 months	--
Dr. Mamta Ranka	M.Sc. Ph.D.	Asst Prof	Organic Chemistry	5 ½ Years	--
Dr. Ritu Saharan	M.Sc. , Ph.D.	Asst Prof	Electro organic synthesis, Organic Chemistry		--
Dr. Riya Sailani	M.Sc., Ph. D.	Asst Prof	Physical Chemistry, Chemical Kinetics & Organic Chemistry	08 months	--
Dr. Satpal Singh Badsara	M.Sc., Ph. D.	Asst Prof	Organic Synthesis: C-H functionalization	10 months	--
Dr. Swati Meena	M.Sc. , Ph.D.	Asst Prof	Organic Chemistry		--
Dr. Vijay Parewa	M.Sc., Ph.D.	Asst Prof	Nano Catalysis, Synthetic Organic Chemistry		--
Mr. Ajay Kumar Surela	M.Sc.	Asst Prof	Inorganic Chemistry	2 Years	--
Ms. Anjali Guleria	M.Sc., Ph. D. (Pursuing)	Asst Prof	Organic Chemistry	3 Years	--
Mr. Ammi lal Rao	M.Sc., Ph.D. (Pursuing)	Asst Prof	Physical Chemistry; Chemical Kinetics	08 months	--
Mr. Devendra Kumar Mahawar	M.Sc. Ph.D. (Pursuing)	Asst Prof	Physical Chemistry; Nano Catalysis	6 Years	--
Mr. Krishna Kumar Jhankal	M.Sc. Ph.D. (Pursuing)	Asst Prof	Physical Chemistry & Spectroscopy		--

Mr. Lokesh Baloat	M.Sc.	Asst Prof	Organic Chemistry		--
Mr. Parmeshwar Lal Meena	M.Sc. Ph.D. (Pursuing)	Asst Prof	Inorganic Chemistry	5 Years	--
Mr. Ramhari Meena	M.Sc., Ph.D. (Pursuing)	Asst Prof	Coordination Chemistry & Physical Chemistry	08 months	--
Ms. Anita Kumari	M.Sc., Ph.D. (Pursuing)	Asst Prof	Inorganic Chemistry		--
Ms. Ankur	M.Sc.	Asst Prof	Organic Chemistry	08 months	--
Ms. Asha Gurjar	M.Sc.	Asst Prof	Organic Chemistry		--
Ms. Asha Pal Maurya	M.Sc.	Asst Prof	Organic Chemistry		--
Ms. Asha Verma	M.Sc.	Asst Prof	Inorganic Chemistry	6 Years	--
Ms. Deepika	M.Sc., Ph.D. (Pursuing)	Asst Prof	Inorganic Chemistry & Organic Chemistry	08 months	--
Ms. Lalita Kumari	M.Sc.	Asst Prof	Organic Chemistry		--
Ms. Manisha	M.Sc., Ph.D. (Pursuing)	Asst Prof	Organic Chemistry, Natural Product		--
Ms. Meenakshi	M.Sc.	Asst Prof	Organic Chemistry	2 Years	--
Ms. Neha Jain	M.Sc., Ph.D. (Pursuing)	Asst Prof	Organic Chemistry & Inorganic Chemistry		--
Ms. Pragati Fageria	M.Sc., Ph.D. (Pursuing)	Asst Prof			--
Ms. Reena Sangwan	M.Sc.	Asst Prof	Organic Chemistry		--
Ms. Savita Meena	M.Sc.	Asst Prof	Organic Chemistry	2 Years	--
Ms. Suchitra	M.Sc.	Asst Prof	Organic Chemistry		--
Ms. Swati Bugalia	M.Sc., Ph.D. (Pursuing)	Asst Prof	Physical & Organic Chemistry		--

12. List of senior Visiting Fellows, Adjunct Faculty, Emeritus Professors

Following visiting fellows and eminent persons visited this department during 2009 – 15

- i) Fullbright Fellow- Dr. John T. Reilly, Coastal Carolina University, USA (July 2009- Jan 2010).
- ii) Visiting Research Fellow under Indo-German Exchange Program - Dr. Moritz von Hopffgarten, University of Marburg, Germany (Feb.-April 2010)
- iii) Senior Visiting Scientists

- Prof. Ravindra K. Pandey, Distinguish Professor and Director, Pharmaceutical Chemistry, Rosewell Park Cancer Institute, Buffalo, USA delivered a lecture on "The Use of Nano Particles and Multifunctional Agents" on (2010, 2012).
- Prof. S. Chandrasekaran, Chairman, Division of Chemical Sciences, Indian Institute of Science, Bangalore (25th February 2010 and 12 Dec., 2011).
- Prof. G. D. Yadav, Director, Institute of Chemical Technology, Mumbai, (25th February 2010).
- Prof. V.K. Manchanda, Head, Radiochemistry Division, BARC, Mumbai delivered a lecture on "DAE activities at a glance" on Feb. 8, 2008.
- Prof. T. Mukherjee, Director, Chemistry group, BARC, Mumbai delivered a lecture on "Application of Nuclear Radiation and Current Nuclear Scenario in India: Role of Academic Institutions, Universities and Industries" on Feb. 7th, 2009.
- Dr. John T. Reilly, Assistant Professor, Coastal Carolina University, Conway, U.S.A., Fulbright Fellow in the Department (July 09-Jan 10) delivered a lecture on "How to get a Fulbright Fellowship" on 22nd Oct., 2009.
- Prof. Henry F. Schaefer III, Graham Purdue Professor of Chemistry, Director, Center for Computational Quantum Chemistry, University of Georgia, delivered a lecture on "From Donor-Acceptor Complex to Gallium Nitride Nanorods" on 9th Nov., 2009.
- Prof. R. S. Mali, Former V.C., North Maharashtra University, Jalgaon, delivered a lecture on "Application of Spectroscopic Techniques in Structure Elucidation" on 18th Dec., 2009.
- Prof. S. Bhargava, Deputy Pro-Vice-Chancellor, RMIT, Melbourne, Australia (Jan 2011, Dec. 2013).
- Prof. J. C. Warner, President and Chief Technical Officer, Warner Babcock Institute for Green Chemistry, Massachusetts, USA (Dec, 2011).
- Prof. Robert "Bob" Peoples, Director and Chairperson, ACS Green Chemistry Institute Washington D.C. (8th Dec, 2011).
- Prof. Alan M Bond, Distinguished Professor and renowned Electrochemist, Monash University, Melbourne, Australia
- Prof. B. K. Mehta, School of Studies in Chemistry & Biochemistry, Vikram University, Ujjain (2011)
- Prof. P. V. Bharatam, Department of Medicinal Chemistry, National Institute of Pharmaceutical Education and Research (NIPER), Mohali (Aug., 2011).
- Prof. Asit K. Chakraborti, Head, Department of Medicinal Chemistry, National Institute of Pharmaceutical Education and Research (NIPER), (Dec, 2011).
- Prof. B. Basu, North Bengal University, Darjeeling, (Dec., 2011).
- Prof. B.K. Patel, Professor of Chemistry, IIT Guwahati, (Dec., 2011).
- Prof. R.K. Sharma, Coordinator, GCNC, Chemistry Department, University of Delhi, (Dec., 2011).

- Prof. Pradeep K. Srivastava, Sr. Principal Scientist (Dy. Director), Medicinal and Process Chemistry Division, Central Drug Research Institute, Lucknow (December, 2013)
- Prof. A. K. Singh, Head, Catalysis Division, NCL Pune (Dec 2013).
- Prof. Goverdhan Mehta, National Research Professor and Lilly-Jubilant Chair Professor, University of Hyderabad (21st January, 2014)
- Prof. A.K. Tyagi, Head, Solid State Chemistry Division, Bhabha Atomic Research Center (Feb. 2014).
- Prof. A K Prasad, Delhi University (April, 2014).
- Dr. M. Lakshmi Kantam, Director, CSIR-Indian Institute of Chemical Technology, Hyderabad (May 30th, 2014).
- Prof. R.D. Kaushik, Dean, Faculty of Science, Gurukul Kangri University (25 July, 2014).
- Prof. A. P. Singh, Head, Catalysis Division, NCL Pune (Nov. 28, 2013 and 28 July, 2014).
- Dr. D.D. Ozha, Former Senior Scientist, Govt. of Rajasthan, Jodhpur (26, 27 August, 2014).
- Dr. Sourav Pal, Director, National Chemical Laboratories, Pune (13 Sep., 2014).
- Mr. Amit Gupta, Regional Solution Sales Manager, Science & Technology (Elsevier) (8 Oct. 2014).
- Dr. P. D. Gupta, Former Dy. Director, Centre for Cellular and Molecular Biology (CCMB), Hyderabad (12 Nov. 2014).
- Prof. G. Mughesh, Indian Institute of Science, Bangalore (12 Jan. 2015).
- Prof. K. G. Thomas, Indian Institute of Science Education and Research, Thiruvananthapuram (10 Feb. 2015).

iv) Emeritus Scientists having Research Projects after Superannuation (during last four years) :

- Prof. K.S. Gupta
- Prof. R. K. Bansal
- Prof. Rakesh Bohra
- Prof. P.S. Verma
- Prof. P. Singh
- Prof. R.N. Prasad
- Prof. O.D. Gupta
- Prof. Renuka Jain
- Prof. R.V. Singh (UGC-BSR Faculty Fellow)
- Dr. V. Kabra
- Dr. R. Pandey

13. Percentage of classes taken by temporary faculty programme-wise information

At UG level nearly 30% classes were taken by guest faculty members. After new faculty recruitment (since August 2014), ~10-15% classes are taken by guest faculty. All the PG classes are being engaged by regular faculty members.

14. Programme-wise Student Teacher Ratio:

Following are the approximate Programme-wise Student Teacher Ratios in different courses run by department:

B.Sc. (at Constituent Colleges)	2822:54 (~ 52:1)
M. Sc.	106:25 (~ 4:1)
Ph. D.	157:25 (~ 6:1)

15. Number of academic support staff (technical) and administrative staff: sanctioned, filled and actual:

Following is the position of ministerial, technical staff and lab bearers:

	SANCTIONED	FILLED	ACTUAL WORKING
Ministerial			
PS	One	1	one
Assistant	One	1	one
UDC	Two	2	Two
LDC	One	-	Nil
Peon	Three	3	Four
Chowkidar	Three	3	3 + 1*
Sweeper	Two	2	Two
Technical Staff			
Trained Electronic Mechanic	One	1	One
Glass Blower	One	1	One
Technical Assistant	One	1	Nil
Sr. Technical Assistant FTNMR	One	Nil	Nil
Instrument Supervisor	One	1	1*
Gas Cleaner	One	Nil	Nil
Gas Mechanic	One	Nil	Nil
Lab Staff			
Sr. Lab. Assistant	Two	Nil	Nil
Lab. Assistant	Five	1	1+ 3* + 1#
Lab. Bearer	Seven	2	2 + 2*
Lab Boy Cum Farrash	Two	1	1 + 2*

*Contractual staff engaged through agency as per permission by Registrar
On fixed salary to retired employee

16. Research thrust areas as recognized by major funding agencies

Following thrust areas have been recognized by major funding agencies:

- Nonconventional Chemical Synthesis and Transformations (UGC-CAS)

Research Projects by Funding Agencies are under following Thrust Areas-

- Atmospheric & Environmental Chemistry
- Bio-inorganic, Bio-organic Chemistry
- Chemical Dynamics
- Computational Chemistry
- Corrosion Science
- Electrochemistry and Electrodeics
- Green Chemistry
- Heterocyclic Chemistry
- Medicinal Chemistry
- Natural Product Chemistry
- Nanomaterial Chemistry
- Organometallic Chemistry
- Synthetic Inorganic and Material Chemistry
- Synthetic Organic Chemistry

17. Number of faculty with ongoing projects from

a) National

12

b) International funding agencies and

NIL

c) Total grants received.

On going projects (15): Rs. 195.35 Lacs

Completed projects (25): Rs. 262.13362 Lacs

Grand total (2009 – 2015) = Rs. 457.48362 lac

Give the names of the funding agencies, project title and grants received project-wise.

Following are the details of projects received by faculty members of the department:

Name of the faculty	Funding Agency	Title of the Project	Sanctioned Amount (Rs.)	Duration
Prof. Anshu Dandia	CSIR	Diversity – oriented synthesis of chemotherapeutic Spiro azo hetrocycles 02 (0143) 13 EMR II	22 Lac	February 2013 – February 2016
Prof. R.V. Singh	CSIR	Greener Microwave Irradiated Approach for the Synthesis of Platinum, Palladium, Germanium, Silicon and Molybdenum Complexes and their DNA Cleavage, Antioxidant, Antifertility and Plant Growth Regulatory	13.74 Lac	01/04/2013 to 31/03/2016

		Activities 01/2571/12-EMR-II dated 03/05/2013		
Prof. R.V. Singh	UGC-BSR	18-1(47) 2013 BSR	10.65 Lac	2013 to 2015
Dr. A.K. Varshney	UGC	Design synthesis and structure activating evaluation of some new coordination compounds of silicon, tin, platinum and palladium with oxygen, nitrogen and sulphur donor ligands. 40-65/2011	6.31 Lac	3 years 1/11/2011 to 31/11/2014
Dr. Asha Jain	UGC	Investigation of Hybrid Organic – Inorganic derivatives of some group 13 and group 14 elements 41-203/2012 (SR) 17/07/2012	6.00 Lac	1/07/2012 – (3 years)
Prof. P. Singh and Dr. M. Sharma	UGC	Quinonid Molecular Diversity in Bignoniaceous and its chemotaxonomic and Biogenetic studies. 40/68 (SR) 5.7.2011	13 Lac	April 2010 - Aug. 2014
Prof. R. Bohra / Dr. M. Nagar	DST	SR/S1 /1C 37 /2011 (Hybrid inorganic – organic nonmaterial based on organically modified metal alkoxides synthesis and characterization)	17.73 Lac	March 2012 to June 2014
Prof. R. Bohra / Dr. M. Nagar	CSIR	Aqueous and non-aqueous sol-gel synthesis of metal/hetrometal oxide Nano particles of some early transition metals	12 Lac	3 Years, 2013– 2016
Prof. R. Jain / Dr. M. Jain	UGC	Isolation and identification of bioactive compounds from mimosa hamata and Bauhina racemosa as sorese of new drugs.	5.8 Lac	2013 – 2016
Dr. R. Pandey / Dr. D.K. Sharma	UGC	Study of electrochemical behavior of therapeutic and compounds and their qualification in pharmaceutical dosage forms No. 42-236/2013 (SR) 12/03/2013	10.16 Lac	1/04/2013 3 yrs
Prof. Anshu Dandia	UGC	New Protocols for Envision-Economic synthesis and Reactions of Medically important Spiro	7.03 Lac	February 2009-March 2012

		Bioactive Heterocycles. No. 34-349/ 2008 (SR)		
Prof. Anshu Dandia	CSIR	01(2248)08EMR New Approaches for Environmental-Economic synthesis and Reactions of Biologically important scaffolds with particular Emphasis on spiro Heterocycles	12.36 lacs	2009-2012
Dr. R.T. Pardasani / Dr. R. Joshi	UGC	Preparation and properties of modes of thiophenic drugs: A comparative reactivity of benzo(b)thiophene-2,3-dione with aromatic amines and ketones. (36-289/2008 (SR))	5.868 lacs	26/03/2009 (3 years)
Dr. O.D. Gupta/ Dr. D.C. Gautam	UGC	Synthesis of fluorine containing Bio-active organic compounds and Ionic Liquids F. 36- 290/ 2008	12 lacs	(March 2009 – October 2012)
Prof. R.K. Bansal / Dr. Neelima Gupta	DST	Catalytic Asymmetric Diels-Alder Reaction of Azaphospholes SR/ S1/ OC/ 71 -2008	19.54 lacs	(September 2009 – August 2012)
Prof. R.K. Bansal / Dr. Neelima Gupta	UGC	Experimental and Theoretical Investigation of 1,5-Electrocyclization of Cycloiminium 2-Phosphaallylides (F36-282/2008(SR))	Rs. 7,13,200/-	May 2009- April 2012
Dr. Neelima Gupta	DST	Synthetic and theoretical investigation of novel heterocyclic systems incorporating $\sigma^2 \lambda^2$ – phosphorous stabilized by aromatization/delocalization No. SR-S1-OC- 21-2008	17 lacs	(February 2008 – January 2011)
Prof. R.K. Bansal / Dr. Neelima Gupta / Prof. G. Frenking	DST-DFG Indo-German cooperation	Pericyclic and Pseudopericyclic Mechanism in 1,5-Electrocyclization of Cycloiminium Allylides and 2-Phosphaallylides : A Theoretical Investigation (INT/FRG/DFG/P-22/2008)	Rs. 4,60,950/- + DFG component	Aug 2008- July 2010

Dr. Vijaya Kabra / Dr. Neelima Gupta	UGC	Facile synthesis of biodynamic chiral organophosphorus heterocycles F33-259/2007(SR)	Rs. 9,25,800/-	April 2008- Mar 2011
Prof. R.V. Singh	CSIR	Structural , Biochemical and pesticidal Aspects of the Intramolecular coumarin Based and Allied imine complexes of later Transition Metals Through Green Approach 01 (2307) 09 EMR II 2009	16.9 Lac	3Years 2009
Dr. P. Pardasani	DAE	Heterometallic derivatives of Binucleating ligands: A structural computational and pulse radiolytic study. 2009/37/31/BRNS/BSC 2099	15.079 lacs	3Years 2009
Dr. A.K. Yadav	UGC	Ionic liquids as designer solvent for synthesis of biodynamic quinazolines and their ribofuranosides 37-1-2009.SR	5.72 Lakh	2009 3 years
Prof. R.V. Singh	UGC	Greener Pathways for the synthesis of Bio- inorganic complexes Through Improved Multi component Green chemical approach 34-324/ 2008 (SR)	10.65 Lac	3Years 2009
Dr. Nighat Fahmi	UGC	Transition metal ion directed synthesis and characterization of macro cyclic complexes and their biological activity. 36-282/2008 (SR)	6.8 lacs	3Years 2009
Prof. P. S. Verma / Dr. Alka Sharma	UGC	Efficacy of some Green inhibitors to combat corrosion of some industrial Metal and their Alloys 36-286/2008 (SR)	8.89 lacs	3Years 2009
Prof. Renuka Jain	UGC	Evaluation of anthraquinones and related compounds from cassia species as antimicrobial and antioxidant agents 36-285/ 2008 – 1. 5. 09	5.69 lacs	3Years 2009
Prof. K.S.Gupta /	DST	Role of polycyclic Aromatic	18.5 lacs	2010 (April 2010)

Dr. CPS Chandel		Hydrocarbons(PAHS), Volatile organic compounds (VOCs) and ammonia on Aqueous phase Atmospheric Autoxidation of sulfur Dioxide		to September 2013
Prof. Anshu Dandia	UGC-BSR	F-4/10 /2010 (BSR)	7 lacs	1Year, 2010
Prof. R. N. Prasad / Dr. M. Agarwal	UGC	Synthesis and characterization of alkaline earth metal complexes of oxa-azamacrocycles 39. 708 – 2010	10.42 lacs	3Years, 2010
Prof. P. Singh / Dr. Mahesh Sharma	UGC	Quinonoid Molecular Diversity in Bignoniaceous and its chemotaxonomic and Biogenetic studies	9.75 lacs	3Years, 2010
Prof. R. Bohra / Dr. Meena Nagar	DST	Hybrid inorganic-Organic nanomaterial based on organically modified metal-alkoxides synthesis and characterization SR/S1/IC 37/2011	14,89,712	1/05/2009 to 13/05/2012
Dr. Debanjan Guin	1. UGC-Start up Grant	Development of optica sensor for metal ion detection	6,00,000	2015-2017 2 years
	2. DST-Young Scientist Research Grant (Final Year)	Development of Multifunctional Magnetic Quantum Dots (MQDs) for Biosciences	10,00,000	Sept 2012- Sept 15
Dr. Ashok Kumar Basak	1. UGC-Start up Grant	Palladium Catalyzed Asymmetric Synthesis	6,00,000	2015-2017 2 years
	2. DST-Young Scientist Research Grant	Synthesis of Trifluoromethyl containing Heterocycles	23,00,000	2015-18
Dr. Swagat Mohapatra	1. UGC-Start up Grant	Introduction of metals into organic conducting polymer	6,00,000	2015-2017 2 years
	2. DST-Fast Track Young Scientist Research Grant	Synthesis of Napthalene diimide based metal complexes aiming to develop new electron-transport materials for use in organic LEDs	23,00,000	2015-18
Dr. Satpal Singh Badsara	1. UGC-Start up Grant	Development of Novel Metal Free Organic Transformations:	6,00,000	2015-2017 2 years

		Transition Metal Catalysis versus Peroxide Catalysis in sp ³ C-H Borylation		
	2. DST-INSPIRE faculty award	Application of Iron Catalysis in the Development of C-H Borylation Reactions and Diastereoselective Synthesis of C-Aryl and C-Vinyl Glycosides	35,00,000	2015-2020
Dr. Vijay Parewa	MHRD-UGC-BSR Programme	Nanocatalysis: A sustainable approach for the synthesis of biologically pertinent moieties.	6,00,000	24 months, May 2015 to May 2017

18. Inter-institutional collaborative projects and associated grants received

Following are the details of Inter-institutional collaborative projects and associated grants received by the department:

a) National collaboration

Collaboration between university of Rajasthan and BARC funded by Department of Atomic Energy: Rs.15 Lacs (completed 2013)

b) International collaboration

Following international collaborations were setup:

- DST-DFG Indo-German Cooperation Project (2008-2010): (Rs 4.92 Lacs Indian component + DFG component for stay of Indian Researchers in Germany and Travel of German Researchers to India).
- RMIT University Melbourne, Australia (Research Exchange Award AUD \$ 5,000/-).
- Rosewell Park Cancer Research Institute, USA

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received. (last five years)

Following are the details of departmental projects funded during last five years:

DST- FIST II nd Phase (2009-14)	Rs 180 Lacs
UGC-CAS Ist Phase (2005-2010)	Rs. 75.5 Lac
UGC-CAS II nd Phase (sanctioned 2013)	Rs.140 Lac
UGC - BSR grant for Infrastructure (2007-2010)	Rs. 80 lacs

20. Research facility / centre with

- State recognition
NIL
- National recognition
Centre of Advanced Study in Chemistry

(UGC-CAS)

DST – FIST

Following are the research facilities arranged in this department through these grants:

- FTIR Spectrometer (Shimadzu),
- UV-Visible Spectrometer (Shimadzu),
- Table-Top GC Mass Spectrometer (Shimadzu),
- Multi-nuclei 300MHz FTNMR (JEOL)
- OF-High Resolution Mass Spectrometer (Waters),
- CHN Elemental Analyser (Perkin Elmer)
- Single Crystal X-ray diffractometer
- Semi-Preparative HPLC
- International recognition
NIL

21. Special research laboratories sponsored by / created by industry or corporate bodies

NIL

22. Publications:

- Number of papers published in peer reviewed journals (national/international)
353 nos
- Monographs
NIL
- Chapters in Books (International Reference Books)
Following five chapters were published in books:
 1. Prof. Anshu Dandia, An approach towards green switch through nanocatalysis for the synthesis of biodynamic heterocycles; Green Chemistry: Synthesis of Bioactive Heterocycles, Vol I, 2014, Springer, Germany.
 2. Prof. Anshu Dandia, Molecular Iodine: Mild, green and nontoxic Lewis acid catalyst for the synthesis of heterocyclic compounds; Green Chemistry: Synthesis of Bioactive Heterocycles, Vol I, 2014, Springer, Germany.
 3. Dr. Alka Sharma One chapter in “Governometrics and Technological Innovation for Public policy Design and Precision” IGI Global, USA (2014).
 4. Dr. Alka Sharma One chapter in Green Corrosion Chemistry and Engineering: Opportunities and Challenges, Wiley-VCH Verlag (2012).
 5. Dr. Neelima Gupta One chapter in Topics in Heterocyclic Chemistry, Vol 21: Phosphorus Heterocycles II, Springer: Berlin, Germany (2010).
- Edited Books
Following three books were edited by faculty members:
 1. Prof. Anshu Dandia (Editor) “Green Chemistry: Synthesis of Bioactive Heterocycles” Springer, Berlin, Germany (2014).
 2. Prof. R. K. Bansal (Vol. Editor) Topics in Heterocyclic Chemistry, Vol 21: Phosphorus Heterocycles II, Springer: Berlin, Germany (2010).

3. Prof. R. K. Bansal (Vol. Editor) Topics in Heterocyclic Chemistry, Vol 20: Phosphorus Heterocycles I, Springer: Berlin, Germany (2009).

- Books with ISBN with details of publishers

Following eight books with ISBN No. were published by faculty members:

1. M. P. Dobhal, Porphyrins - Spectral Data of Natural and Hydroxy Porphyrin; Landolt-Börnstein: Numerical Data and Functional Relationships in Science and Technology, Subvolume-A, 2014, Springer Verlag, Germany.
2. Mahendra Kumar, P-31 NMR of phosphorus compounds- Part 2; Landolt-Börnstein New Series III/40H2, 2014, Springer-Verlag, Germany.
3. Mahendra Kumar, P-31 NMR of phosphorus compounds- Part 1; Landolt-Börnstein New Series III/40H1, 2013, Springer-Verlag, Germany.
4. R.T. Pardasani and P. Pardasani, Magnetic Susceptibility of Paramagnetic Compounds; Landolt Bornstein, Vol II/31A, 2012, Springer-Verlag, Germany.
5. R.T. Pardasani and P. Pardasani, Magnetic Susceptibility of Paramagnetic Compounds, Landolt Bornstein; Magnetic Susceptibility Data - Part 1, Vol II/31B-F, 2012, Springer-Verlag, Germany
6. D. K. Sharma, Electrochemical Incineration of Human Waste In Confined Space- A Concept of Green Technology, 2012, Lambert Academic Publishing.
7. Mahendra Kumar, V. Gupta and R. Gupta, ¹³C-NMR of Aliphatic Compounds; Landolt-Börnstein New Series III/35D, Part-1, 2010, Springer-Verlag, Germany.
8. R.T. Pardasani and P. Pardasani, ¹¹B-NMR Data, Landolt Bornstein, Vol III/40, Supplement to Vol III/35, 2009, Springer-Verlag, Germany.

- Number listed in International Database (For e.g. Web of Science, Scopus, Humanities International Complete, Dare Database - International Social Sciences Directory, EBSCO host, etc.)

As per information available; till year 2013 (Univ. of Rajasthan) papers included in international database WOS are 2546 and SCOPUS 5340

- Citation Index – range / average

As per SCOPUS; faculty wise range of citation index is 107 – 1516 (average 274)

- SNIP:

N. A.

- SJR:

N. A.

- Impact Factor – range / average

The range of impact factor is 0.5 – 6.8 with average IF 1.5

- h-index

Maximum h-index as per SCOPUS is 25

23. Details of patents and income generated:

One patent has been generated during past five years:

Dr. D. K. Sharma Patent Application No. 2970/MUM/2010

Date of Filing of Application 26/10/2010

Publication Date: 23/11/2012

Title of the Invention: Novel HMG CO-A Reductase Inhibitor and preparation there of -
Kundan Singh Shekhawat and D. K. Sharma.

24. Areas of consultancy and income generated

NIL

25. Faculty selected nationally / internationally to visit other laboratories / institutions/ industries in India and abroad

Most of the Faculty members are invited to National and International Research Institutes in connection with collaborative research programs. Number of Faculty members visited Foreign Universities in USA, Germany, Australia and UK as Visiting Scientists / Exchange Programs during last five years.

- Dr. M.P. Dobhal, Visiting Scientist, Rosewell Park Cancer Institute, State University of New York, Buffalo, USA (2007 - 2009).
- Dr. Neelima Gupta, Visiting Scientist, DST-DFG, Phillips University of Marburg, Germany (Sep. - Oct. 2009).
- Dr. D. K. Sharma Visiting Scientist, RMIT Research Exchange Award, RMIT, Melbourne, Australia (2010).

26. Faculty serving in

a) National committees

Prof. Anshu Dandia has served as:

- UGC Nominee, SAP Committee, University of Jammu;
- Member, UGC Project evaluation committee;
- Member, UGC International Travel Grant Committee;
- Vice-President, Indian Chemical Society, Kolkata;
- Council member, Chemical Research Society of India, Bangalore (2009-14).

Prof. R. V. Singh has served as:

- Member, Selection Board for Officers in CSIR, New Delhi (2009);
- Expert for the Selection Committee of Professors and Associate Professors by Sardar Patel University Gujarat, Kurukshetra University, Kurukshetra, Gurukul Kangri University, Haridwar and Several Engineering Colleges by the Honorable Vice-Chancellors;
- Vice-Chancellor Nominee for Recognition Committee in Chemistry, Amravati University, Amravati, for the Period 2008-2012;
- Vice-Chancellor Nominee as an Educationist for the selection of Principals of different Colleges/ Institutions from 2009-2013;
- UGC Expert for CAS, Innovative and NAAC Programs since 2009;
- UGC Expert for evaluation of Major Research Projects, w.e.f. 2011; Member e-content committee of UGC for PG courses since 2014;
- Member of innovative programs of UGC for Colleges and Universities since 2012.

Prof. K. S. Gupta has served as:

- Member, Central Board of Studies in Chemistry, Govt. of Chhatisgarh (2006-2009);
- Member, Research Degree Committee, Gurukul Kangri University, (2013-Contd.);
- Member, Research Degree Committee, MDS University, Ajmer (2013-14);
- Member, Research Degree Committee, Dayalbag Educational Institute, Agra (2002 – contd.)
- Paper Coordinator in UGC-MHRD e-Content Project at PG level in Environmental Sciences (2014)

Dr. Neelima Gupta has served as:

- Co-convener, CRSI Rajasthan Chapter;
- Council Member (2014-2017) Chemical Research Society of India (CRSI), Bangalore.

Dr. Alka Sharma has served as:

- Elected member in Governing Council of Electrochemical Society of India (ECSI), Bangalore (2014-15);
- Organizing Secretary, CRSI Rajasthan Chapter;
- Member, Research Supervisor Registration Committee, MDS University, Ajmer (2013-14)

b) International committees

Prof. Anshu Dandia:

- Fellow of Royal Society of Chemistry, England;
- Affiliate Member, International Union of Pure and Applied Chemistry (IUPAC), U.S.A.;
- Member, Biomed Experts-Social Networking Columbia, U.S.A.;
- Member, International Green Chemistry Network, U.S.A.;
- Member, American Chemical Society (ACS), U.S.A.

c) Editorial Boards

Following faculty members served in editorial boards of different journals:

- Prof. Anshu Dandia (Heterocyclic Communications; JICS)
- Prof. R. V. Singh (Member, International Editorial Board of Main Group Metal Chemistry (2000– contd.); Honorary Member, Editorial Board Asian Journal of Environmental Quality; Honorary Member, Editorial Board International Journal of Chemical Sciences; Honorary Member, Editorial Board Chemistry – An Indian Journal; Honorary Member; Editorial Board Chemistry, Asian journal of Chemical and Environmental Research).
- Dr. M K Pathak (Heterocyclic Communications)
- Dr. A K Varshney (JICS)
- Dr. Rahul Joshi (JICS)
- Dr. Alka Sharma (J. Electrochem. Soc. of India)

- Editorial Board of Departmental Journal – Chem News Letter - *A Journal of Research and Education in Chemical Sciences* (ISSN:2278-6201): Prof. R. V. Singh, Editor-in-Chief; Prof. Anshu Dandia, Editor; Prof. Sanjiv Saxena, Editorial Secretary; Dr. Asha Jain, Dr. Alka Sharma, Dr. Neelima Gupta and Dr. Nighat Fahmi are Associate Editorial Secretary.

d) Any other (please specify):

a. Reviewer:

- Faculty members served as reviewers in International Reputed Journals such as, Tetrahedron Lett., Tetrahedron, Catalysis Communication, Green Chemistry Letters, J. Org. Chem., J. Computational Chem., J. Fluorine Chem., Current Organic Chemistry, Corrosion Science, Bioorganic and Medicinal Chemistry, etc. published by ACS, Thieme, Springer, Elsevier, Bentham, Royal Society of Chemistry etc.

b. Informal Research Collaborations of faculty with other institutions:

- Prof. Anshu Dandia has collaborative research work with BHU, Varanasi.
- Dr. Neelima Gupta has international collaborative research work with Institute of Biochemistry, EMA University of Greifswald, Germany; Philips University, Marburg, Germany; and national collaborative research with National Chemical Laboratory, Pune; Aliah University and Jadavpur University, Kolkata; and The IIS University, Jaipur.
- Dr. Alka Sharma has national collaborative research work with Poornima College of Engineering, Poornima University, Jaipur

c. Local Chapters of prestigious societies/organizations:

- To further strengthen the research activities, Local Chapter of the Chemical Research Society of India (CRSI), Bangalore and Sub-center of ACS-Green Chemistry Network are also actively functional in the department.

27. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs).

Following recharging programmes were arranged during past five years:

- UGC-ASC Refresher course in Physical Sciences on “Advances in Materials at the Interface of Physics & Chemistry” 15 December, 2014- 03 January, 2015.
- UGC-ASC Refresher course in Chemistry on “New Frontiers of Chemical Sciences for a Sustainable Future” 27 January-15 Feb, 2014.
- UGC-ASC Refresher Course in Physical Sciences, 07-1-13 to 26-1-13.
- UGC-ASC Refresher Course on “Ecofriendly Benign Chemistry”, 28 November to 17 December, 2011.
- UGC-ASC Refresher Course on “The Role of Chemistry in Remediating the Environment”, from 26 July to 14 August, 2010
- Seminars, Workshops and Extension Lectures by Eminent Scientists/Academicians are organized regularly in the Department.
- National Seminar on Patent Application, Patent Office, Ministry of Commerce & Industry, Delhi (2009)

28. Student projects

- Percentage of students who have done in-house projects including interdepartmental projects
Almost 100% M.Sc. IV semester students completed their in-house projects as per the requirement of the Curriculum.
- Percentage of students doing projects in collaboration with other universities/ industry / institute
Nil

29. Awards / recognitions received at the national and international level by

- Faculty
Several national and international level awards have been received by faculty members of this department. In addition, following recognitions were received by various faculty members of this department:
 - **Prof. Anshu Dandia, Prof. R.V. Singh, Dr. MP Dobhal, Dr. Neelima Gupta, Dr. Nighat Fahmi** Honored and Awarded for Excellence in Research by Vice Chancellor University of Rajasthan based on highest H index in the survey done by DST New Delhi in Jan, 2009.
 - **Prof. Anshu Dandia**: Recipient of “Best Chemistry Teacher in India Award” felicitated by Dr. Shashi Tharoor, Union Minister of State for higher education at CII Global Higher Education Summit in Nov 8, 2012, at New Delhi, organized by TATA Chemicals Limited and the Association of Chemistry Teachers and Confederation of Indian Industries. Honored as “Fellow of Royal Society of Chemistry”, London in 2012 by one of the oldest chemical society of the world. CRSI-Bronze medal awarded by one of the most reputed Research Society of India (Chemical Research Society of India) in Feb, 2012 at Trivandrum. International Distinguished Women Scientist Award: Honored by this prestigious award by the hands of IUPAC President Nicole Moreau (France) in the International Conference on “Chemistry for Mankind” organized in joint venture of ACS, RSC and ISCB at Nagpur in Feb, 2011. Research Paper published in “Bioorganic & Medicinal Chemistry (14, 2409, 2006)” awarded as “Best Paper & Most Cited Paper” Elsevier: Amsterdam; One of the most viewed/ downloaded article (August 2013-April 2014): "On-water" synthesis of 3-substituted indoles via Knoevenagel/Michael addition sequence catalysed by Cu doped ZnS NPs, *Tetrahedron Letters*, 2013, 54, 5711-5717 (Elsevier Publications); 4th most accessed article (January-March 2015): PC-ZnO Nanocomposites as Efficient and Reusable Catalyst for the Synthesis of α,β - Unsaturated Compounds and Aldimines, *Current Organic Chemistry*, 2014, 18, 2652-2664 (Bentham Science Publishers); Presently, she is Vice-president of Indian Chemical Society, Kolkata; and she has been Council Member (2008-2014) of Chemical Research Society of India, Bangalore.

- **Prof. R.V. Singh:** Received prestigious Prof. J. C. Ghosh Memorial Award-2011 by Indian Chemical Society, Kolkata; UGC-BSR Faculty Fellowship (UGC-BFF - 2013). Conferred the “Indira Gandhi Sadbhawana Award-2014” by the International Business Council, New Delhi Conferred “Bharat Jyoti Award-2014” by India International Friendship Society, New Delhi. Awarded “Bharat Shiksha Ratan Award-2013” by Global Society for Health and Educational Growth, New Delhi for extra-ordinary achievement and contribution in the field of Chemistry and for the encouragement of students” Conferred “Shiksha Ratan-2012” by India International Friendship Society, New Delhi.
- **Prof. K. S. Gupta:** Recipient of Ameta Award by Indian Chemical Society, 2010; Research work prominently displayed in book ‘**Sulfur oxides-Advances in Research and Applications**’ by Q. A. Acton (Ed.), Scholarly Editions, Atlanta, 2013; Sectional President, Analytical and Environmental Chemistry, Indian Council of Chemists, 2010.
- **Prof. D. C. Gautam:** Awarded Gold Medal at International Conference on Heterocyclic Chemistry in Saint Petersburg, Russia.
- **Prof. R. K. Bansal:** Humboldt Fellow Revisiting Program, Phillips University, Marburg, Germany (2010).
- **Dr. D. K. Sharma:** Recipient of RMIT Foundation Research Award.
- **Dr. Neelima Gupta** is Council Member, Chemical Research Society of India, Bangalore (2014-2017); Co-convener, CRSI-Rajasthan Chapter, CRSI, Bangalore.
- **Dr. Alka Sharma** is an elected member in Governing Council of Electrochemical Society of India (ECSI), Bangalore (2014-15); Associate Editor in JECSI, Bangalore; and Organizing Secretary, CRSI-Rajasthan Chapter, CRSI, Bangalore.
- **Dr. Swagat K. Mohapatra** – Recipient of Young Scientist – ITS, DST for attending Gordon Research Conference, Italy 05/2014.
- **Dr. Satpal K. Badsara** – Awarded DST INSPIRE Faculty award by DST, Govt. of India (2015); NSC Post-Doctoral Fellowship by NSC Taiwan.
- **Dr. Devendra Kumar Mahawar** – Awarded summer research fellowship by Indian Academy of Sciences, Bangalore for working on Summer Project named “Gold Nano Catalysis” with Dr. K.R.S. Chandrakumar at Bhabha Atomic Research Centre, Mumbai in May-June, 2012.
- **Dr. Riya Sailani** – Awarded best poster award in International Conference on Green Technologies for Greener Environment 2010 (Meerut)
- **Doctoral / post doctoral fellows**
 - Kirti Kr Shah (Senior Research Fellow) DAAD (German Academic Exchange Service) Fellowship for Ph.D. Students Institute of Biochemistry, EMA University of Greifswald, Germany (2009)
 - Tripti Yadav, ESKAS Fellowship, University of Geneva, Switzerland (2009).

- **Students**

Several research scholars have won best paper (oral/poster) presentation awards at National and International conferences. To name a few:

- **Best Oral Presentation Award – Amit Sharma:**

National Conference on “*Frontiers at the Chemistry-Allied Sciences Interface*” organized at Department of Chemistry, University of Rajasthan, Jaipur during 13-14 March, 2015 for paper presentation entitled “Fe₃O₄ nanoparticles: A magnetically recoverable catalyst for the synthesis of chromeno[1,6]naphthyridine derivatives in aqueous medium under microwave irradiation”; Amit Sharma, Vijay Parewa, and Anshu Dandia*.

- **Young Scientist Award – Amit Sharma:**

17th International Conference of International Academy of Physical Sciences (CONIAPS XVII) organized at University of Rajasthan, Jaipur during 16-18 January, 2015 for paper presentation entitled “Catalytic applications of magnetite NPs for the synthesis of pharmaceutically vital chromene derivatives via Aldol/Knoevenagel condensation sequence”; Amit Sharma and Anshu Dandia*.

- **Best Poster Presentation Award – Amit Sharma:**

Biochrome-2014 organized by Dr. B. Lal Institute of Technology in collaboration with Department of Science and Technology, Rajasthan during 20-22 November, 2014 for paper presentation entitled “An “on-water” assessment of Cu doped ZnS NPs catalysed synthesis of novel 3-substituted indoles via Knoevenagel/Michael addition sequence”; Amit Sharma, Vijay Parewa and Anshu Dandia*.

- **Best Poster Presentation Award – Dinesh K. Mahawar:**

National Conference on Recent Advancements in Chemical Sciences (RAICS-2015) organized at Malaviya National Institute of Technology (MNIT) Jaipur during 21-23 August 2015 for paper presentation entitled “PC-ZnO nanocomposites: Efficient catalyst for the synthesis of biologically vital enone derivatives”; Dinesh K. Mahawar, Vijay Parewa, and Anshu Dandia*.

- **Best Poster Presentation Award – Begraj Kumawat:**

National Conference on “*Frontiers at the Chemistry-Allied Sciences Interface*” organized at Department of Chemistry, University of Rajasthan, Jaipur during 13-14 March, 2015 for paper presentation entitled “Ultrasound assisted nano-catalysis: Al₂O₃ nanoparticles catalyzed one pot diastereoselective synthesis of tetrahydropyridines”; Begraj Kumawat, Vijay Parewa and Anshu Dandia*.

- **Best Oral Presentation Award – Kanupriya Purohit:**

National Symposium on Organic Synthesis, held at ICG-The IIS University, Jaipur (18-19 Feb., 2011) for paper presentation entitled, "Tandem [1+4] / [2+4] Cycloadditions of 2-Phoshaindolizines" Kanupriya Purohit, Neelima Gupta*.

- **Best Oral Presentation Award – Guddi Choudhary:**

National Conference on Electrochemistry for Cleaner Environment (ECCE-2014) January 17-18, 2014, organized by the Department School of Studies in Chemistry and Environmental Chemistry, Jiwaji University, Gwalior – 474 011 (M P) for paper presentation entitled, Impeding acid corrosion of copper by noxious weeds, Alka Sharma, Satya Prakash Chawla, Arpita Sharma and Guddi Choudhary.

Moreover, the Department bestows annually following awards to the meritorious students:

1. Dr. Sogani Thakuria & Rajani Singh Memorial Award
2. Dr. Ghanshyam Srivastava Commemoration Scholarship
3. Prof. B. C. Joshi Gold Medal
4. Prof. R. C. Mehrotra Memorial Gold Medal
5. Prof. V. N. Pathak Memorial Need-cum-merit Scholarship
6. Rukmani Devi Mishra Memorial Scholarship
7. (Late) Smt. Vimla Gupta Memorial Scholarship

30. Seminars/ Conferences/Workshops organized and the source of funding (national/international) with details of outstanding participants, if any.

Eight conferences / seminars / workshops were organized by the department during past six years. These are:

S. No.	Department Name	Name of the conference	Sponsored by	Period
1.	Chemistry	National Workshop on "Green Chemistry– Opportunities and Challenges in New Global Era"	DST Green Chemistry Task Force	December 7-9, 2009
2.	Chemistry	National Symposium on "New Frontiers in Chemical Sciences" (NFCS-10)	UGC-CAS	25th February, 2010
3.	Chemistry	National Symposium on "Chemistry in Our Lives" to commemorate the International Year of Chemistry	UGC	12 December, 2011
4.	Chemistry	Third International Conference on Heterocyclic Chemistry	CSIR, UGC	10-13 December, 2011
5.	Chemistry	Career counseling & training programme and workshop on personality development for post-graduate students and research scholars	UGC	January 16-18, 2012.
6.	Chemistry	International Workshop on Chemistry for a Sustainable Future	DST, DBT, CSIR, RSC London (North India Section)	10-12 December, 2012
7.	Chemistry	National Seminar on Chemistry for Economic Growth	DST-PURSE	31 August, 2013
8.	Chemistry	Frontiers at the Chemistry-Allied Sciences Interface	SERB-DST, DRDO, UGC and DAE	March 13th – 14th, 2015

A large number of eminent academicians and scientists of international repute participated in above mentioned conferences. Few names among them are - Prof. S. Chandrasekaran (Chairman, Division of Chemical Sciences, Indian Institute of Science,

Bangalore); Prof. T. Mukherjee (Director, Chemistry group, BARC, Mumbai); Prof.

Name of the Programme	Applications Received	Selected	Total	Pass percentage
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Henry F. Schaefer III (Graham Purdue Professor of Chemistry & Director, Center for Computational Quantum Chemistry, University of Georgia); Prof. J.C. Warner (President and Chief Technical Officer, Warner Babcock Institute for Green Chemistry Massachusetts, USA); Prof. Robert “Bob” Peoples, (Director and Chairperson, ACS Green Chemistry institute, Washington D.C.); Prof. S Bhargava (Pro-vice-chancellor, RMIT, Australia); Prof. G. D. Yadav (Director, Institute of Chemical Technology, Mumbai); Prof. R.K. Sharma (Coordinator, GCNC, University of Delhi); Prof. P. V. Bharatam, (National Institute of Pharmaceutical Education and Research-NIPER); Prof. Asit K. Chakraborti (Head, Department of Medicinal Chemistry, NIPER); Prof. B. Basu (North Bengal University, Darjeeling); Prof. B. K. Patel (IIT Guwahati).

Recently held two day National Conference on “Frontiers at the Chemistry-Allied Sciences Interface” on March 13th –14th, 2015, was inaugurated by Padma Vibhushan Prof. M. M. Sharma, Emeritus Professor of Eminence, ICT Mumbai as Chief Guest and Prof. S. Chandrasekaran, Honorary Professor & SERB Distinguished Fellow, IISc Bangalore and Padamshri Prof. V. K. Singh, Director, IISER Bhopal & Director, SPA Bhopal as the Guest of Honor. In addition to the keynote lecture by Prof. M.M. Sharma, 11 plenary and 9 invited lectures were given by eminent scientists (most of them are Bhatnagar Awardee), including Dr. Sourav Pal, Director, CSIR-National Chemical Laboratory, Pune & Director CSIR-CSMCRI, Bhavnagar; Prof. D. Basavaiah, University of Hyderabad; Prof. Anamik Shah, Vice-Chancellor, Gujarat Vidyapith Ahmedabad; Prof. S. Bhattacharya, Jadavpur University, Kolkata; Prof. A. K. Chakraborti, NIPER, Mohali; Prof. S. Hajra, CBMR, Lucknow; Prof. N. C. Desai, MKBU, Bhavnagar, Prof. Dalip Kumar, BITS Pilani, Dr. P. K. Srivastava, CDRI, Lucknow, Dr. B. D. Shakyawar, UPPTI, Kanpur, Dr. T. Athar, IICT, Hyderabad.

Under the Banner of the Rajasthan Chapter of the Chemical Research Society of India (CRSI), Bangalore and Sub-center of ACS-Green Chemistry Network Invited lectures and Interactive Sessions with Eminent Scientists are also organized regularly.

31. Code of ethics for research followed by the departments

Code of conducted for research are followed as per UGC and University of Rajasthan norms.

32. Student profile programme-wise

Following is the programme wise student profile:

		Male (P+F)	Female (P+F)		Male/Female
M.Sc.					
2009-10	1300	32+29	33+24	118	> 98%
2010-11	1400	28+30	38+33	129	> 98%
2011-12	1600	21+28	28+34	111	> 98%
2012-13	URATPG*	23+19	29+27	098	> 98%
2013-14	URATPG*	18+20	45+29	112	> 98%
2014-15	URATPG*	21+14	34+42	111	> 98%
2015-16	URATPG*	24+15	31+33	103	> 98%
Ph.D.					
2009-10	Details are with Central MPAT Committee of University	02	03	05	
2010-11		17	18	35	
2011-12		03	04	07	
2012-13		11	20	30	
2013-14		13	13	26	
2014-15		12	12	24	

33. Diversity of students

Following is the diversity of students:

Name of the Programme	% of students from the same university	% of students from other universities within the State	% of students from universities outside the State	% of students from other countries
M.Sc. 2009-10	75%	20%	~ 5%	Nil
2010-11	80%	15%	~ 5%	Nil
2011-12	80%	15%	~ 5%	Nil
2012-13	85%	10%	~ 5%	Nil
2013-14	90%	8%	2%	Nil
2014-15	91%	8%	1%	Nil
Ph.D. (2009-15)	~ 50%	~30%	~20%	Nil

34. How many students have cleared Civil service and Defense service examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.

As per available information in the department

- Nearly 20-25 students qualify NET-JRF/NET-Lectureship/SLET/Gate each year.
- Nearly 10-20 students clear Govt. and Public Sector Competitive Exams. Like DRDO, NTPC, ONGC, GSI, Pollution Control Deptt. DAE, Forensic Laboratory.

35. Student progression

Following is the student's progression:

Student progression	Percentage against enrolled
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UG to PG	~15-20 %
PG to M.Phil.	NA
PG to Ph.D.	40-45% per year
Ph.D. to Post-Doctoral	~ 5% per year
Employed <ul style="list-style-type: none"> • Campus selection • Other than campus recruitment 	~ 40 % M.Sc. Students get employment in Govt./Public Sector Units/ Industries/ Educational Institutes. >80% of doctoral candidates of the department also get employment as above.
Entrepreneurs	~ 10%

36. Diversity of staff

Following is the diversity of staff:

Percentage of faculty who are graduates	
of the same university	37.99%
from other universities within the State	0.02%
from universities from other States	61.99%
from universities outside the country	Nil

37. Number of faculty who were awarded M. Phil., Ph.D., D.Sc. and D.Litt. during the assessment period

TWO faculty members, Dr. Dinesh Kumar Jangid and Dr. Bhanupriya Mordhiya, were awarded PhD (2015); while no faculty member was awarded M. Phil., D.Sc. and D.Litt. during the assessment period

38. Present details of departmental infrastructural facilities with regard to

a) Library

The Department has its own Departmental Library which houses About 4000 text books, 5000 reference books and a large number of old volumes of several Journals. Hard copy of Chemical Abstract, Vol. 1 to 141 (1907-2004) are also available. E-Journals are available online through University Network. Web version of Chemical Abstracts is available through Scifinder.

b) Internet facilities for staff and students Wi-Fi facilities & LAN facility

Wi-Fi and LAN facilities are provided to all faculty members, research scholars and PG students through University INFONET center.

c) Total number of class rooms

Department has 6 class rooms including two Lecture Theatres.

d) Class rooms with ICT facility

Department has 02 Class rooms with ICT facility.

e) Students laboratories–

Department has 05 students laboratories for PG students including two recently modernized modular state-of-the-art laboratories with necessary safety measure.

f) **Research laboratories**

Department has 16 research laboratories in various areas.

g) **Infrastructural facilities**

At presently, the Department is equipped with following sophisticated minor instruments-

- FTIR Spectrometer (Shimadzu),
- UV-Visible Spectrometer (Shimadzu),
- Table-Top GC Mass Spectrometer (Shimadzu),
- Digital Spectrophotometer (Elico),
- Basic Electrochemical System (Conserve),
- Polarograph (Elico),
- COD Digestion Apparatus (JSGW),
- Semi-preparative HPLC (Shimadzu),
- Polarimeter (Anchrom),
- Electrochemical Analyser (CH Instruments, USA),
- Incubator, Autoclave, etc. for bioactivity studies
- Microwave Synthesizer
- Sonicator

Until recently sufficient infrastructural facilities were available in the department for the benefit of researchers. Unfortunately, during recent collapse of a part of the three storied building of the Vigyan Bhawan, following Major Instrumentation facilities and one well-equipped Seminar Hall of the Department were completely destroyed:

- Multi-nuclei 300MHz FTNMR (JEOL), OF-High Resolution Mass Spectrometer (Waters), CHN Elemental Analyser (Perkin Elmer), Single Crystal X-ray diffractometer

39. **List of doctoral, post-doctoral students and Research Associates;**

Following are the details of doctoral, post-doctoral students and Research Associates for Department of Chemistry:

Doctoral Students

Total No. of Research Scholars working in the department:	123
No. of students drawing scholarship under CSIR-JRF/SRF	40
No. of students drawing scholarship under UGC-JRF/SRF	55
No. of students drawing scholarship under UGC-BSR	03
No. of students drawing project fellowships:	04
No. of students drawing meritorious fellowships:	09
No. of students drawing Rajiv Gandhi National Fellowship	03

Post-Doctoral Fellow

1 UGC Post Doctoral Teacher Fellow

- Dr. Kanti Sharma
- Dr. Naveen Gautam
- Dr. Nikita Sharma

- Dr. Reeta Gupta
- 2 Dr DS Kothari Fellow
 - Dr. Prateek Pandya
 - Dr. Shahnawaz Khan
- 3 Research Associate
 - Dr. Ruby Singh
 - Dr. Vijay Parewa

40. Number of post graduate students getting financial assistance from the university.
University has approved 3 Departmental Scholarships for Ph.D. Students.

41. Was any need assessment exercise undertaken before the development of new programme (s)? If so, highlight the methodology.

- Yes, department has undertaken need assessment exercises through BoS / CoC, Methodology. Workshops & meetings were arranged to make syllabus, revision of syllabus, pattern of assessment and exams. For example Pre. Ph.D. course Work.
- New academic programmes are taken up at the BoS / CoC and Academic Council meetings after due consultation at the departmental level in staff council.

42. Does the department obtain feedback from

- a. Faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?

Yes, informal feedback is obtained from the faculty members and discussed in regular faculty meetings and the suggestion for improvement of curriculum, etc. are recommended by the Staff Council to the Academic Council for implementation.

- b. Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?

Yes, informal feedback obtained from students at regular intervals through meetings, which is discussed at length in various staff committees and staff council to formulate the remedial measures wherever necessary.

- c. Alumni and employers on the programmes offered and how does the department utilize the feedback?

Informal feedback from alumni and employers is continuously sought about the programs/courses offered by the department. Their inputs are discussed amongst the faculty members and wherever feasible the suggestions are incorporated.

43. List the distinguished alumni of the department:

Following are few distinguished alumni of the department

1. Prof. R.K. Pandey, Professor and Distinguished Member, Cellular Stress Biology Director, Pharmaceutical Chemistry, Roswell Park Cancer Institute, Buffalo, USA
2. Prof. Sanjay Mathur, Chair of Inorganic and Materials Chemistry, University of Cologne, Germany
3. Dr. Pooran Chand, CEO and Co-Founder, Therachem Research Medilab, USA.
4. Dr. V. K. Jain, Head, Synthesis and Pure Materials, BARC, Mumbai.

5. Prof. R.T. Pardasani, Dean, Faculty of Science, Central University of Rajasthan.
 6. Prof. Rakesh Kumar, Department of Laboratory Medicine and Pathology, University of Alberta, Edmonton, Canada
 7. Dr. Alok Sharma, President, Kores India Ltd., Mumbai
 8. Dr. Ram Sanehi, President, ARL InfraTech.
 9. Dr. Raman Grover, Vice-president, Cynamide India.
 10. Dr. Upendra Tripathi, Director, Startech Lab, Hyderabad.
44. Give details of student enrichment programmes (special lectures / workshops /seminar) involving external experts.
- Following student enrichment programmes are undertaken by Department:
1. Regular Interaction Sessions with External Expert Scientists and Academicians
 2. Three day Workshop on Personality Development for Students
 3. Workshops for introduction to New Instrumentation Techniques
 4. Extension lectures on Recent Developments in Chemical Research (Listed above)
 5. Counseling Sessions for Career Opportunities
45. List the teaching methods adopted by the faculty for different programmes.
- In addition to traditional ways of teaching-learning (chalk-board and evaluation through internal assessments/class tests); use of ICT; peer group discussions; quizzing; models and demonstration-based teaching learning; assignment-based learning; Tutorials; Students' seminar presentations; interactive sessions; problem-based/project-based learning and Mentoring Program involving faculty of the Department etc.
46. How does the department ensure that programme objectives are constantly met and learning outcomes are monitored?
- Objectives of the Programme are monitored by continuous evaluation and internal assessment in addition to the assessment of the performance of students in End-semester exams. Seminars and Viva-Voce exams on completion of project work.
47. Highlight the participation of students and faculty in extension activities.
- Students regularly participate in the NSS activity, Cultural Programs, Sports activities at the Department and University, as well as competitions organized by other Institutions.
48. Give details of "beyond syllabus scholarly activities" of the department.
- Invited lectures on "Recent Developments in Chemical Research" and Regular Interaction Sessions with External Expert Scientists and Academicians are regularly organized in the department for students. List of some distinguished speakers during last years is given below-
1. Prof. Ravindra K. Pandey, Distinguish Professor and Director, Pharmaceutical Chemistry, Rosewell Park Cancer Institute, Buffalo, USA delivered a lecture on "The Use of Nano Particles and Multifunctional Agents" on (2010, 2012).
 2. Prof. S. Chandrasekaran, Chairman, Division of Chemical Sciences, Indian Institute of Science, Bangalore (25th February 2010 and 12 Dec., 2011).

3. Prof. G. D. Yadav, Director, Institute of Chemical Technology, Mumbai, delivered lecture on 25th February 2010.
4. Prof. S. Bhargava, Pro-Vice-Chancellor, RMIT, Melbourne, Australia delivered a lecture on "Electro Catalysis and Sensing of Nano-Structured Materials," 2011.
5. Prof. J. C. Warner, President and Chief Technical Officer, Warner Babcock Institute for Green Chemistry, Massachusetts, USA delivered lecture on "Green Chemistry and Entropic Control in Materials and Processes" 7th Dec, 2011.
6. Prof. Robert "Bob" Peoples, Director and Chairperson, ACS Green Chemistry Institute Washington D.C., 8th Dec, 2011. "Green Chemistry and Entropic Control in Materials and Processes"
7. Prof. B. K. Mehta, School of Studies in Chemistry & Biochemistry, Vikram University, Ujjain delivered lecture on "Use of Chemical Fingerprinting for Quality Monitoring Studies of Medicinal Plants using High-Performance Thin-Layer Chromatography"
8. Prof. P. V. Bharatam, Department of Medicinal Chemistry, National Institute of Pharmaceutical Education and Research (NIPER), Mohali delivered lecture on "Design and Synthesis of Anti-diabetic Agents" Aug., 2011.
9. Prof. Asit K. Chakraborti, Head, Department of Medicinal Chemistry, National Institute of Pharmaceutical Education and Research (NIPER), delivered lecture on "Rational Use of Nonconventional Reaction Media", Dec, 2011.
10. Prof. B. Basu, North Bengal University, Darjeeling, "Polymer supported catalysis", 12 Dec., 2011.
11. Prof. B. K. Patel, Professor of Chemistry, IIT Guwahati, on "Diversity Amplifying Strategy for Heterocycles" 12 Dec., 2011.
12. Prof. R. K. Sharma, Coordinator, GCNC, Chemistry Department, University of Delhi, "Objectives of Green Chemistry Network", 12 Dec., 2011.
13. Prof. V.K. Manchanda, Head, Radiochemistry Division, BARC, Mumbai delivered a lecture on "DAE activities at a glance" on Feb. 8, 2008.
14. Prof. T. Mukherjee, Director, Chemistry group, BARC, Mumbai delivered a lecture on "Application of Nuclear Radiation and Current Nuclear Scenario in India: Role of Academic Institutions, Universities and Industries" on Feb. 7th, 2009.
15. Dr. John T. Reilly, Assistant Professor, Coastal Carolina University, Conway, U.S.A., Fullbright Fellow in the Department (July 09-Jan 10) delivered a lecture on "How to get a Fulbright Fellowship" on 22nd Oct., 2009.
16. Prof. Henry F. Schaefer III, Graham Purdue Professor of Chemistry, Director, Center for Computational Quantum Chemistry, University of Georgia, delivered a lecture on "From Donor-Acceptor Complex to Gallium Nitride Nanorods" on 9th Nov., 2009.
17. Prof. R. S. Mali, Former V.C., North Maharashtra University, Jalgaon, delivered a lecture on "Application of Spectroscopic Techniques in Structure Elucidation" on 18th Dec., 2009
18. Prof. Alan M Bond, Distinguished Professor and renowned Electrochemist, Monash University, Melbourne, Australia delivered lecture on "Broadening Electro-Chemical Horizon" 21st January, 2013.

19. Prof. Pradeep K. Srivastava, Sr. Principal Scientist (Dy. Director), Medicinal and Process Chemistry Division, Central Drug Research Institute, Lucknow Lecture on “Nanomaterials – Small is Beautiful with Sciencetools”, (December, 2013).
 20. Prof. A.K. Tyagi, Head, Solid State Chemistry Division, Bhabha Atomic Research Center on “Contemporary materials Science: Role of Chemistry” and “Chemistry for a better future” (Feb. 2014).
 21. Prof. A. P. Singh, Head, Catalysis Division, NCL Pune on ““Organo functionalized mesoporous SBA-15, PMOs and Zr- TMS: Synthesis, Characterization and Application in environmentally benign organic transformations” was delivered on November 28, 2013.
 22. Prof. Suresh K. Bhargava, Dy. Pro Vice-Chancellor (Internationals) & Director, Centre for Advanced Materials and Industrial Chemistry, RMIT University, Melbourne, Australia, delivered a lecture, entitled “Nanomaterials for Sensing, Diagnosis, Drug delivery and Electrochemical Applications” on 18th December, 2013.
 23. Prof. P.S. Kalsi, UGC resource person delivered series of lectures on “Newer approaches to teach Organic Chemistry”, Feb. 2014.
 24. Professor D I Brahambhatt, Sardar Patel University, Vallabh Vidyanagar, delivered six lectures on Mass Spectrometry and IUPAC Nomenclature, Feb. 2014.
 25. Dr. M. Lakshmi Kantam, Director, CSIR-IICT, Hyderabad had an interactive session with research scholars on “strengthen the analytical skills, improvement of the quality of publications and carrier opportunities in Research and Development for women scholars, May 30, 2014.
 26. Prof. R.D. Kaushik, Dean, Faculty of Science, Gurukul Kangri University, Haridwar delivered a talk on “Vedic Sciences and Technology of Consciousness”, July 25, 2014.
 27. Dr. D.D. Ozha, Former Senior Scientist in Ground Water Department, Jodhpur, delivered invited talk on “Invisible Pollution and Health”, August 27, 2014.
- Following programmes were organized by the department in last five years:
 - One Day Seminar for UG/PG students on ‘Quantum Chemistry’ was organized on 13 September, 2014.
 - ‘CRSI Chemistry Olympiad - 2014’ was organized for Senior Secondary students under the banner of CRSI-Rajasthan Chapter.
 - “The Chemistry Week” was promoted by organizing a series of invited Lectures during first week of August, 2013.
 - International Year of Chemistry was celebrated on 12 December, 2011, and a Quiz contest for students on “Chemistry in Our Lives” was held.
 - Three day Workshop on Personality Development was organized for PG and Research Students
 - Workshops for introduction to New Instrumentation Techniques
 - Counseling Sessions for Career Opportunities.

- In addition, students participate in conference organized by other Universities / Institutes.
- Faculty members deliver invited talks / seminars in Other Universities, Institutes of National Importance and attend International Conferences for Invited talks / Key note addresses / chair sessions.
- Most of the Faculty members act as Resource Persons in Refresher Courses of own University and Other Universities and are Members of Editorial Boards of International Journals and Reviewers for International Journals.
- Experts in Selection Committees and Paper Settings in Competitive Exams.
- Members, Presidents, Vice-Presidents, Convenors, Council Members in National / International Professional scientific Organizations

49. State whether the programme/ department is accredited/ graded by other agencies? If yes, give details.

NO

50. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.

The Department is well known nationally and internationally for Excellence in Research and Teaching. Faculty members are working in several Emerging fields of Chemical Research. For example, the Fundamentals of Green Chemistry have been successfully applied for the synthesis of organic and inorganic compounds of pharmaceutical and Industrial interest. New knowledge based applications of Nanomaterials for potential use as biosensors and nanocatalysis have been explored. Phytochemicals isolated from medicinally important plants of Rajasthan as well as their modified derivatives have been screened for their potential use as medicine. Basics of computational chemistry in organic reaction mechanism and drug-biomolecule interactions have been applied. Potential use of Natural resources has been employed as ecofriendly Corrosion inhibitors for industrial-metals, leading to conservation of economy, energy and environment.

51. Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.

Following are major Strengths, Weaknesses, Opportunities and Challenges of the department:

Strengths

- Research conducted in the Department of Chemistry covers all areas of basic research.
- The research work of Chemistry Department is of significant standard; with some research groups have international recognition and collaboration.
- Department caters well to the scientific institutes; chemical and pharmaceutical industry by providing them well trained and scientifically groomed researchers.
- Faculty of department is a remarkable collection of talent and 25 % of the faculty members have had opportunities to work in many of the world's finest institutions of higher learning as post doctoral fellow.
- Proactive Partnerships with other universities of the country.

- The department thus offers a fertile intellectual climate for its students and a remarkable collection of intellectual capital for the university and the state.
- Most of the faculty members are actively engaged in research, which reflects in their teaching methodology.
- Up graded existing PG and most of the Research laboratories with latest safety measures.
- Updated instructional equipments for UG and PG practical courses.

Weaknesses

Most important weaknesses that need to be attested to:

- Shortage of teaching and non teaching staff is the most important constraint.
- At present, another important issue that is constraining to deliver better is the total loss of Department's Sophisticated Instrumentation facility during the collapse of building last year. Collapse of a large part of the Department building including Seminar Hall has limited the availability of infrastructure facilities.
- Generic research at times threatened by highly applied research.
- Insufficient high-quality research infrastructure; Funding for doctoral training short-term; not enough networking, especially in terms of international mobility.
- Unavailability of funds for maintaining research equipments and other infrastructure and Technical Staff for Instrumentation Facilities.

Opportunities available or foreseen:

- Preparing a long-term plan for maintaining the high level of research infrastructures.
- Increasing mobility of faculty and Ph.D. students.
- Further enhancing the efficient utilization of research funds obtained from central funding agencies. Reinforcing the core resources of research.
- Creation of interest in faculty and students for application-oriented Research programs.
- Creation of Courses for allied branches of Chemistry.

Threats perceived by the Department

- Due to unavailability of basic though expensive instruments required for research bright PG and research students may take admission in other universities.
- Increasing competition from Private universities
- Investment by Private universities for creating modern and well equipped M.Sc. and research labs
- High-quality research infrastructure in other state universities as well as private universities. Withering away of small research units, in the absence of joint research strategies and unit-to-unit networking.
- Increasing interest of students in nano-chemistry, materials and pharmaceutical chemistry, cosmetics and cosmaceutical chemistry, food and nutraceutical chemistry.

52. Future plans of the department.

Following are the future plans of this department:

- Infrastructure- To seek funds for establishing state-of-the-art research facilities and infrastructure needed to perform research that is discerning, inventive and has momentous impact on both the chemical sciences and community problems.
- Establishment of Sophisticated Instrumentation Centre through National Funding Agencies. To have avant-garde research programs in mass spectrometry, separation science, chemical imaging, nuclear magnetic resonance, laser-based detection, drug design and atmospheric measurements.
- Establishment of Instrumentation Workshop in the Department.
- Digitalized cataloging of books and journals in the Departmental Library.
- New short-term courses in allied branches of Chemistry.
- Industry-Academia Collaborative Program for hands-on training of students. To engage research and PG students in entrepreneurial activities and support these students to work on projects with high technology transfer potential.
- To emphasize Collaborative research programs with other National and International Universities/Institutes. To explore possibilities of visiting fellowships, especially for students.
- To strengthen core areas of research so that faculty can contribute to interdisciplinary and multidisciplinary research related to societal problems.
- To make strategies for creating an atmosphere of cooperation and collaboration among research groups to facilitate interdisciplinary research both within individual sub-disciplines in the chemical sciences and between sub-disciplines.
- To develop models for teaming faculty and students with industry in ventures focused on the development of innovative technologies for nanonutraceuticals and nanocosmaceuticals.
- Grants will be sought to create advanced molecular sciences facilities. Serious planning will be done to start centers of strength in areas directly related to industry such as drug discovery and disease detection, energy/catalysis, and soft materials such as membranes, DNA nanostructures, and peptide assemblies and composite materials.