

3. Evaluative Report of the Department

1. Name of the Department:
Department of Geology
2. Year of establishment:
1985
3. Is the Department part of School/Faculty of the University?
Yes, Department of Geology is a part of 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 courses in Geology at constituent colleges while offers PG and Ph.D. programmes at Department of Geology itself.
UG – B.Sc. (Pass course)
P.G. – M.Sc.
Ph. D. in Geology
D. Sc. in Geology
5. Interdisciplinary programmes and departments involved.
NIL
6. Courses in collaboration with other universities, industries, foreign institutions, etc
NIL
7. Details of programmes discontinued, if any, with reasons.
No programme has been discontinued during 2009-14.
8. Examination System: Annual/Semester/Trimester/Choice Based Credit
University has adopted annual scheme for UG exams in Geology and semester system with Choice Based Credit System for PG exams in Geology. Department is also running one semester Pre Ph.D. course work in Geology.
9. Participation of the department in the courses offered by other departments.
NIL

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

Following are the details of faculty members in this department:

	Sanctioned	Filled	Actual (including CAS & MPS)
Professor	Nil	Nil	4 (CAS)
Associate Professor	2	Nil	2 (CAS)
Assistant Professor	16	6	-
Others	-	-	-

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

Name	Qualification	Designation	Specialization	No. of years of Experience	No. of Ph. D students guided for the last 4 years
Prof. Anil Maheshwari	M.Sc, Ph.D	Professor	Stable isotope studies	26 yrs	02
Prof. M. K. Pandit	M.Sc. Tech. Ph.D	Professor	Igneous Petrology	30 yrs	03
Prof. Salil Agrawal	M.Sc. Ph.D	Professor	Igneous Petrology	30 yrs	01
Prof. D.K. Pandey	M.Sc. Ph.D	Professor	Palaeontology	29 yrs	02
Dr. R. L. Somani	M.Sc. Ph.D	Assoc. Professor	Economic Geology	28 yrs	01
Dr. N. S. Mahla	M.Sc. Ph.D	Assoc. Professor	Structural Geology	24 yrs	Nil
Prof. A.K. Sinha (Retd.)	M.Sc. Ph.D	Professor	Photogeology	34 yrs	02

12. List of senior Visiting Fellows, adjunct faculty, emeritus professors.

No senior Visiting Fellows, Adjunct Faculty, Emeritus Professors visited this department during 2009 – 15. However following eminent persons were involved in various teaching programmes for the past five years:

- Prof. Ram. S. Sharma, Emeritus Professor formerly associated with BHU, Varanasi is a visiting faculty at this department.

13. Percentage of classes taken by temporary faculty- programme - wise information
All UG and PG classes are being engaged by regular faculty members of this department.

14. Programme- wise Student Teacher Ratio

UG courses: Student Teacher Ratio 15:1 (90 students in B. Sc. and 6 teachers)

PG courses: Student Teacher Ratio 4:1 (24 students in M. Sc. and 6 teachers)

15. Number of academic support staff (technical) and administrative staff:

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

	Sanctioned	Filled	Actual
Technical	01	01	01
Administrative	08	07	07
Others (e.g. on contract basis)	04	00	04

16. Research thrust areas as recognized by major funding agencies

Following are the recognized thrust areas in the Geology Department:

- Geochemistry,
- Palaeontology and
- Tectonics

17. Numbers of faculty with ongoing projects from

a) National

6 nos.

b) International funding agencies

NIL

c) Total grants received.

Rs.62. 36 lacs

Details are as follows:

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

S. No.	Funding agency	Title of the Project (Principal Investigator/Coordinator)	Sanctioned Amount (Rs.)	Duration
1	UGC	Morphotectonic Study of Upper Part of Bandi River Basin Towards Groundwater Recharge Enhancement, Jaipur District, Rajasthan. Professor A. K. Sinha (Retd.)	6.20 lacs	2007-10

2	UGC	Characterization of the C-isotope variability in the Delhi Supergroup versus the Mesoproterozoic ocean, Rajasthan. Funded by UGC, New Delhi Prof. Anil Maheshwari	6.0 lacs	2009-12
3	DST-SA	Neoproterozoic Geochronology and paleaeogeography of NW India Prof M. K. Pandit	6.35 lacs	2006-09
4	MoES	Anisotropy of magnetic susceptibility and microstructural analysis of metasediments of Larsemann Hills, E. Antarctica: Tectonic Implications. Sponsored by Ministry of Earth Sciences. Prof. M.K.Pandit	13 lacs	2009-13
5	BRNS	Geochemical and petro mineralogical characterization of Delhi Supergroup of rocks along zones of albitization in Rajasthan with relation to uranium mineralization. Sponsored by Board of Research in Nuclear Sciences (BRNS). Prof. M.K.Pandit	12.78 lacs	2009-13
6	DST	Depositional Environment and Sequence Stratigraphy of the Marwar Supergroup, west-central Rajasthan. DST New Delhi Prof. D. K. Pandey	18.03 lacs	2010-14

18. Inter-institutional collaborative projects and associated grants received

a. National Level collaboration

1. With MoUs

NIL

2. Informal Collaborations/linkages

Department has informal collaboration with Birbal Sahni Institute of Palaeobotany, Lucknow

b. International collaboration

1. With MoUs

Department has signed MoU with FAU, Germany

2. Informal Collaborations/linkages

Department have informal collaboration / linkage with following institutes / centres:

- GeoZentrum, FAU, Erlangen, Germany
- Nanjing Institute of Palaeontology (China)
- Institute of Geological Sciences, Jagiellonian University, Oleandry 2a; 30-063 Krakow
- Faculty of Geology, University of Warsaw (Poland)
- School of Geosciences WITS University, Johannesburg, South Africa

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

The department has been awarded following departmental infrastructural support scheme by different national agencies

- DRS Phase I (UGC) 2004-2009 -22 lac
- DRS Phase II (UGC) 2009-2014-53 lac

20. Research facility/ centre with

- State recognition
NIL
- National recognition
NIL
- International recognition
NIL

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

No research laboratories sponsored by/created by industry or corporate bodies in this department.

22. Publications:

Number of papers published in peer reviewed journals (national/international)

- * National
17 nos
- * International
40 nos
- * Monographs
NIL
- * Chapters in Books
one
- * Edited Books
NIL

- * Books with ISBN with details of publishers
NIL
- * Number listed in International Database (For e.g. Web of Science, Scopus, Humanities International Complete, Dara Database- International Social Sciences Directory, FBSCO host, etc.)
119 (Scopus)
- * Citation Index- range/average
5 - 1056 (citations of faculty publication)
- * SNIP ---
- * SJR ---
- * Impact Factor- range/average
Average 0.5-8.12
- * H-index (Range)
2 to 16 (16 by Prof. M.K. Pandit)

23. Details of patents and income generated

No faculty member of this department has registered any patent during past five years.

24. Areas of consultancy and income generated

No faculty of this department has undertaken any consultancy work during past five years.

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

Most of the Faculty members of this department are invited to National and International Research Institutes in connection with collaborative research programs. Details are as follows:

- Dr. M. K. Pandit
Visiting Scientist Geological Survey of Norway & Visiting scientist CNPQ Brazil
- Dr. Salil Agrawal
Visiting Professor: Center for investigation in Energy, National University of Mexico, Temixco, Mexico, Oct. 2010
- Dr. D. K. Pandey
Visited German and other European labs under Alexander van Humboldt and DAAD Fellowship; CNRS Fellowship

26. Faculty serving in

- a) National committees
NIL
- b) International committees
NIL

c) Editorial Boards

- Prof. M.K. Pandit: Member Editorial Board: Bulletin of Pure and Applied Sciences
- Prof. M.K. Pandit: Member Editorial Board: Journal of Environment and Pollution

d) Any other (please specify)

NIL

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

- Prof. D.K. Pandey and Dr. N.S. Mahla attended workshop conducted by ONGC, Govt. Of India on Petroleum exploration at Ahmedabad, Gujarat in 2012.

28. Student projects

- Percentage of students who have done in-house projects including inter-departmental projects

NIL

- Percentage of students doing projects in collaboration with other universities/industry/institute

NIL

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

- Faculty

No award of national international level was received by any faculty member of this department. However following recognitions were received by faculty members of this department:

➤ **Prof. M. K. Pandit**

- Awarded CNPq, Govt. of Brazil visiting fellowship
- Member of 34th Indian Expedition to Antarctica during Jan.-March, 2015

➤ **Prof. D. K. Pandey**

- Member of Bathonian sub commission
- Indian Corresponding Member – Jurassic Sub commission
- Gold Medal for best paper in the Paleontological Society of India in 2011
- Member of Advisory Committee of International Sub-commission of Jurassic System
- Alumni University Wuerzburg, Germany

- Doctoral/post doctoral fellows

NIL

- Students

- Department has been chosen for ONGC Scholarship for students under Academia-Industry Interaction Program.

- Mr. Navratan Yadav: Secured first position on All India basis in UPSC's Geologists Examination 2013.
- Ms Asha Saxena topped the RPSC conducted Geologists examination in 2014

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

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

- Department of Geology has organized six Seminars/Conference/Workshops during past five years. Details are as follow:
- 9th International Congress on the Jurassic System 6-8th January, 2014 Convener: Prof. D.K. Pandey.
- Field Workshop on, 'Colouring Earths: their origin, characterization and application in Indian and European Traditional art', from 20 to 22 January 2011. Convener: Prof. M. K. Pandit.
- National Seminar on "Stratigraphy, Palaeontology and Paleo environment" from 3 – 5 February 2011. Convener: Prof. D. K. Pandey.
- Status of uranium exploration in Precambrian rocks of Rajasthan, Jaipur. Sponsor: Department of Atomic Energy, Faculty In charge: Professor M. K. Pandit, 2009
- Indo German workshop on sustainable urban development, Jaipur: Sponsor: DST, New Delhi Faculty In charge: Professor A. K. Sinha, 2009.

31. Code of ethics for research followed by the departments.

Codes 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:

Name of the Programme	Applications received	Selected	Pass percentage		
			Male	Female	Male
M.Sc. 2014-15	Centralized admission	9	2	-	-
M.Sc. 2013-14	Centralized admission	12	01	-	-
M.Sc. 2012-13	Centralized admission	10	Nil	100%	N.A.
M.Sc. 2011-12	20	08	Nil	100%	N.A.

M.Sc. 2010-11	40	10	Nil	100%	N.A.
M.Sc. 2009-10	25	13	01	100%	100%
Ph.D. 2014-15	Through MPAT	05	Nil	-	-
Ph. D. 2013-14	Through MPAT	05	Nil	100	-
Ph.D. 2012-13	Through MPAT	07	Nil	100	-
Ph. D. 2011-12	Through MPAT	04	Nil	100	-
Ph. D. 2010-11	Through MPAT	01	Nil	100	-
Ph. D. 2009-10	Direct	07	Nil	-	-

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 2014-15	90%	Nil	10%	Nil
M. Sc 2013-14	70%	20%	10%	Nil
M. Sc 2012-13	70%	20%	10%	Nil
M. Sc 2011-12	90%	10%	Nil	Nil
M. Sc 2010-11	90%	10%	Nil	Nil
M. Sc 2009-10	70%	20%	10%	Nil

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

As per available information in the department

- Nearly 10-15 students qualify NET-JRF/NET-Lectureship each year.
- Nearly 5-10 students qualify SLE Teach year.
- Nearly 02-03 students qualify GATE each year.

35. Students progression

Following is the student's progression:

Students progression	Percentage against enrolled
UG to PG	40%
PG to M. Phil.	N.A.
PG to Ph.D.	20%
Ph.D. to Post- Doctoral	-

Employed	
<ul style="list-style-type: none"> • Campus selection • Other than campus recruitment 	70-80%
Entrepreneurs	5-10%

36. Diversity of staff

Following is the diversity of staff:

Percentage of faculty who are graduates	
Of the same university	71%
From other universities within the State	Nil
From universities from other States	29%
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.

One faculty member of this department was awarded P.D. degree during assessment period.

38. Present details of departmental infrastructural facilities with regard to

a) Library:

The Department has its own departmental library which houses nearly 300 books. More books are available with Central Library of this university. Many e-journals are available through infonet center of university while department subscribes two journals.

b) Internal facilities for staff and students:

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 3 class room.

d) Class rooms with ICT facility

Department has 01 Class rooms with ICT facility

e) Students 'laboratories

Department has 04 students laboratories for PG students namely

- Structural Geology Lab;
- Palaeontology lab;
- Petrological Lab;
- Economic Lab

Research laboratories

Department has 03 research laboratories namely

- Thin Section Lab;
- Paleontological Lab;
- Geochemical Lab

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 Geology:

a. From the host institution /university

Doctoral Students

- Deepak Bijarnia
- Rajendra Kumawat
- Dharmveer Singh Ranawat
- Narendra Swami
- Rajesh Singh Sekhawat
- Jitendra Sharma
- Mahesh Sharma
- Sidharth Singh Bhatia

b. From other institutions/universities

- Prof. S.K. Maanju from Ujjain University- Post-doctoral
- Dr. Ranjana Singh

40. Number of post graduate students getting financial assistance from the university.

No post graduate student of this department is getting financial assistance from the university.

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

With changed scenario in terms of infrastructure, laboratory, field work, a consultative meeting is convened to discuss the matter with students, technical staff and teachers. New or change in ongoing academic programmes are taken up at the BoS/ CoC and Academic Council meetings after due consultation in Staff Council of the department

42. Does the department obtain feedback from

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

Yes, suggestions along with improvement received from teachers with regard to the curriculum and teaching learning- evaluation process as practiced and experienced by them in the class rooms, is regularly discussed at faculty meetings/ Staff Council and constructive remedial measures are taken by bringing it to the BoS/ CoC

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

Yes, Departmental Committee and Staff Council discuss the students' feedback on teachers and courses. The group discussion, tutorials, seminar, continuous assessment, students counseling and mentoring contribute to a healthy feedback from the students. The department at its faculty meetings examines such feedback and takes action to address problems, if any

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

The faculty is in regular touch with alumni and employers through research collaborations and other technical interactions. Suggestions are regularly being incorporated in the syllabus of the courses offered and in the field training which is mandatory for all students.

43. List of the distinguished alumni of the department

Following are few distinguished alumni of the department:

- Sh. Surendra Singh IAS, posted in UP
- Sh. Puneet Sharma IAS, posted in Pondicherry
- Sh. Anoop Khinchi RAS
- Sh. Shaleen Upadhyaya RAS
- Sh. Bhuvnesh Kulshrestha IRS, posted in Surat

44. Give details of student enrichment programmes (special lectures/workshops/seminar) involving external experts.

Several special lectures by different eminent researchers for the benefit of students were organized by the department. These including lectures by:

- Prof. R.S. Sharma-Emeritus Professor
- Prof. S.P. Verma, CIE, Mexico University, Mexico
- Prof. Franz T. Fürsich, FAU, Germany
- Prof. Helga de Wall, FAU, Germany

45. List the teaching methods adopted by the faculty for different programmes.

Faculty members normally adopt blackboard teaching method during their class room teaching. Several times they also apply power point presentation for better understanding. Allotment of home assignments to students is also a regular practice. Department also organizes tutorials, Student Seminars and Group Discussions for the benefit of students. The students are being exposed to field training on compulsory basis and students are evaluated through periodic assessments etc.

46. How does the department ensure that programme objectives are constantly met and learning outcomes are monitored?

The department ensures that programme objectives are constantly met through regular interactions with the students, regular assessment of the students, internal assessment, mid-

term examinations and special lectures. Department also ensures it through the periodic assessment and by putting checks in the field training

47. Highlight the participation of students and faculty in extension activities.

Students at UG level participate in the NSS activities run at constituent colleges, 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.

Students of this department participate in Cultural Programs and Sports activities at the Department and University level, as well as competitions organized by other Institutions. Students and faculty also participated in Industry Academia Programme sponsored by ONGC in 2011. Invited lectures for students if any (see details on point 44)

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 has been involved in carrying out geological researches on the various parts of Rajasthan. These research activities have resulted in many significant findings which in turn help in finding new mineral deposits. The contribution to the knowledge of this part of country is well evident by the publications of faculty and the impact of research is evident from citations of the publications.

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:

The most important strengths, in the order of importance:

- Eminent & internationally recognized teaching faculty, who are recipient of many awards and recognitions
- Significant research contribution of faculty through international and national research Collaborations as evident by publications
- Beside DRS-SAP, many individual research projects have been taken up by the faculty
- Providing career opportunity to most students in national and international reputed organizations (Geological Survey of India, Coal India Limited, Oil and Natural Gas

Commission, Atomic Mineral Directorate, etc.) and supporting for a research career also.

- Working for Academia-Industry interaction and recently ONGC has chosen the department to provide ONGC scholarship to meritorious student of M. Sc. every year

Weaknesses

- Non availability of sufficient teaching faculty
- Unqualified and insufficient technical and office staff
- Inadequate resources for infrastructure including Library, Museum and laboratories
- Non availability of field vehicle and related infrastructure for frequent visit to mines & geological sites

Opportunities

- The state of Rajasthan has a unique geological setting and is among the few states in India which are highly rich in metallic minerals of Lead, Zinc, Copper, Tungsten, Iron and around 60 non metallic minerals. Huge deposits of Lignite, oil and gas have recently been reported from the state. The state therefore plays an important role in the development of country by providing natural resources as well by saving the foreign exchange for the country.
- Keeping pace with the fast emerging economy of the country, more natural resources would be required. This puts pressure on existing geological community and hence more and more geologists will be required in future to find the new deposits.

Challenges

- Most of the senior faculty members of the department are about to retire in coming 2-3 years.
- However, no second line of teaching faculty is available, who can inherit the teaching and
- Research skills of outgoing faculty members for the further development of the department

52. Future plans of the department.

Following are the future plans of this department:

- The state of Rajasthan has a unique geological setting and is among the few states in India which are highly rich in metallic minerals, non metallic minerals & huge deposits of Lignite, oil and gas. The state therefore may play an important role in the development of country by providing new natural resources findings or information.
- The department has to take the responsibility to produce more skilled geologists in order to find new deposits. It is therefore proposed to increase the intake of students in Postgraduate course. The department therefore has to create more infrastructures to accommodate the proposed increased intake of students.
- The department also has plan to start few job oriented diploma courses including gemology studies, Petroleum geology, ground water resource management etc. in near future subjected to availability of teaching faculty and required infrastructure.