Department of Earth Sciences, Sambalpur University
Evaluative Report for the period 2010-11 to 2014-15

1. **Name of the Department** : P.G Deptt. of Earth Sciences
2. **Year of establishment :** 1984
3. **Is the Department part of a School/ Faculty of the university ?:** Yes
4. **Names of programmes offered** (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D. Sc., D.Litt., etc.) : P.G. , M.Phil., Ph.D. , D. Sc. & M.Tech.
5. **Interdisciplinary programmes and departments involved :** Yes
6. **Courses in collaboration with other universities, industries, foreign institutions, etc.** No
7. **Details of programmes discontinued, if any, with reasons :** No
8. **Examination System:** Semester
9. **Participation of the department in the courses offered by other departments :** No
10. **Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)**

	Sanctioned	Filled	Actual (including CAS & MPS)
Professor	01	00	00
Reader	02	01	01
Lecturer	03	02	02

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

Name	Qualification	Designation	Specialization	No. of Years of Experience
Dr.J.K.Tripathy	M.Sc., Ph.D	Reader	RS & GIS, Ground Water	11
Dr. D. Behera	M.Sc. M. Phil. & Ph.D	Lecturer	RS & GIS, Envt. Geol, Metamorphic petrology	06
Dr. N. Mahanta	M.Sc. M.Phil & Ph.D	Lecturer	Ground Water & Coal Geology	11

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

Year	Number	Name of the Faculties
2010-11	04	Dr. D. P. Kuity; Prof. S. C. Patel Dr. S. K. Mishra; Dr. Bijay Singh
2011-12	01	Dr. D. P. Kuity
2012-13	01	Dr. D. P. Kuity
2013-14	01	Dr. D. P. Kuity
2014-15	01	Prof. D.P.Kuity

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

Year	Temporary Faculty	Programme	No. of days	Percentage of class
2010-11	Dr. D. P. Kuity	M.Sc.	07	2%
	Prof. S. C. Patel		02	0.5%
	Dr. S. K. Mishra		01	0.25%
	Dr. Bijay Singh		01	0.25%
2011-12	Dr. D. P. Kuity	M.Sc.	07	2%
2012-13	Dr. D. P. Kuity	M.Sc.	07	2%
2013-14	Dr. D. P. Kuity	M.Sc.	07	2%
2014-15	Dr. D. P. Kuity	M.Sc.	07	2%

14. Programme-wise Student Teacher Ratio :

	M.Sc. Programme		M.Tech programme	
Year	No. Of students	Students & Teacher Ratio	No. Of Students	Students & Teacher Ratio
2010-11	11	5:1		
2011-12	24	8:1		
2012-13	24	8:1	10	2:1
2013-14	22	5:1	15	3:1
2014-15	25	11:1	10	2:1

Year	M.Phil.	Students & Teacher Ratio
2010	02	1:1
2011	02	1:1
2012	05	3:1
2013	03	1:1
2014	06	2:1
2015	07	3:1

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

Category	Sanctioned	Filled	Actual
Administrative Staff	02	02	02
Technical	05	04	04

16. Research thrust areas as recognized by major funding agencies -NA

- Remote Sensing & GIS
- Ground Water
- Environmental Geology
- Precambrian geology
- Metamorphic Petrology
- Structural Geology

17. **Number of faculty with ongoing projects from** a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.: NIL

18. **Inter-institutional collaborative projects and associated grants received**

a) National collaboration: NIL
b) International collaboration: NIL

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

20. **Research facility / centre with**

- state recognition
- national recognition
- international recognitio*n*

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

22. **Publications:**

International Peer reviewed Journals

R. K. Kar, P. K. Pradhan and **A. Naik** (2010) Strength Characteristics of Randomly Distributed Fiber-Reinforced Soil., International Journal of Earth Sciences and Engineering, v. 3 (3), p. 434-440.

R. K. Kar, P. K., Pradhan, and **A. Naik** (2011), Triaxial Compression of Fiber-Reinforced Clay. International Journal of Geotechnics and Environment, v. 3 (1), p. 101-115.

P. K. Pradhan, R. K. Kar and**, A. Naik** (2012) Effect of Random Inclusion of Polypropylene Fibers on Strength Characteristics of Cohesive Soil. Geotechnical and Geological Engineering, Springer, v. 30 (1), p. 15-25.

R. K. Kar, P. K. Pradhan, and **A. Naik** (2012) Plate Load Test on Fiber-Reinforced Cohesive Soil. Electronic J. of Geotechnical Engineering (EJGE) v. 17, Bund. E, p. 633-649.

R. K. Kar, P. K. Pradhan, and **A. Naik** (2012)Consolidation Characteristics of Fiber Reinforced Cohesive Soil. Electronic J. of Geotechnical Engineering, v. 17, Bund. Z, p. 3861-3874.

P. C. Sethy, and **A. Naik** (2014) Petrology, Geochemistry and Status of the Tikilipada Granite Gneiss, Sambalpur district, Odisha. International Journal of Earth Science and Engineering, v.79 (2), p.400-407.

P. C. Sethy, and **A. Naik** (2014) Geochemistry and Petrogenesis of Bhojpur Peralkaline Granite Gneiss, Sambalpur District, Odisha, India International Journal of Earth Science and Engineering, v.79 (accepted for publication).

J K Panigrahi, V Sathish Kumar, J K Tripathy (2010) Littoral drift by alongshore flow at Visakhapatnam -East Coast of India , Journal of Hydro-Environment Research (Elsevier) 4: 317-327.

J K Panigrahi, J K Tripathy, A S N Murty (2011) Extremity analysis of storm surge for fixing safe design water level Natural Hazards: (Springer) 56: 1. 347-358.

Panigrahy, J.K., Tripathy, J.K, 2011. Numerical simulation of advection dispersion for monitoring thermal plume recirculation in a shallow coastal environment, ***Applied Ecology and Environmental Research,*** 9(4): pp341-354

N**.** Sahu, T. Gupta, S.C. Patel, D.B. K. Khuntia, **D. Behera,** K. Pande and S.K.Das (2013). Petrology of Lamproites from the Nuapada Lamptoite Field, Bastar Craton, India. Journal of the Geological Society of India. Proceeding of 10th International Kimberlite Conference, P: 137-165**.**

S.C. Patel, R. Khalkho, S.K.Patel, J.M. Sheikh, **D. Behera**, S. Chaudhari and N. Prabhakar (2014) Fluoride contamination of groundwater in parts of eastern India and preliminary experimental study of fluoride adsorption by natural haematite iron ore and synthetic magnetite. **Environ Earth Sci. (Springer). V.72, P: 2033-2049. DOI 10.1007/s12665-014-3112-1.**

Mahanta ,N., Sahoo, H.K., (2012), Assessment of Groundwater quality for Irrigation in the Kuchinda-Bamra Area in Sambalpur District ,Odisha. International Jour. of Earth Sciences & Engineering,vol.05,No.05,pp.1229-1234

Mahanta ,N., Sahoo, H.K., (2012), Remote Sensing Studies in Delineating Hydrogeological parameters in the Drought-Prone Kuchinda-Bamra Area in Sambalpur District, Odisha. International Jour. of Earth Sciences & Engineering,vol.05,No.06,pp.1578-1583

National Peer reviewed Journals:

U. Raghunathan, K. K. Barik, S. Potti, S. Nanda, D. Behera, **A.**, **Naik,** and S. P. Gauda (2013) Evaluation of vehicular air pollution against green space using geospatial technology – a case study. Vistas in Geological Research, v. 12: p. 138-146.

Khaoash, S., Mishra, P., **Tripathy. J.K.** and Goswami, S. (2010) Decca Traps as Receptacle of Terrestrail Carbon Dioxide, *Vistas in Geological Research, Utkal University, Spl. Publ. No. (9)* pp. 131-134.

Tripathy. J.K., Goswami, S ., Khaoash, S and Mishra, P Mishra, P.(2011) Groundwater Hydrochemistry of Baripada beds, Mayurbhanj district, Orissa, ***Vistas in Geological Research, Utkal University, Spl. Publ. No. (10)*** pp. 126-132**.**

Swain B.K., Goswami, S and Tripathy, J.K. (2011) Stone Crusher Induced noise at and around Mitrapur, Balasore, India, Anvesa 6 (1&2) pp. 12-16.

Tripathy, J.K., and Srivastav, S.K. (2012)Assessment of groundwater potential in Western Doon valley, ***Vistas in Geological Research, Utkal University, Spl. Publ. No. (11)*** pp. 69-79.

Mishra, P.C. and Tripathy, J.K. (2013). Study of coastal dynamics along South Coastal Odisha; ***Vistas in Geological Research, Utkal University, Spl. Publ. No. (12)***

Barik, K.K., Tripathy, J.K. and Nanda, S. (2014). Geospatial based ecomorphological zonation mapping of coral reefs in the coastal waters of Gulf of Mannar, East coast of India: ***Vistas in Geological Research, Utkal University, Spl. Publ. No. (13)*** pp.210-223.

Goswami, S,. Das, M. and Tripathy, J.K. (2014) Unveiling the similarities between Permian Glossopteris flora and present day mangrove forest: ***Vistas in Geological Research, Utkal University, Spl. Publ. No. (13)*** pp.229-231.

K.K.Barik, D.Mitra, R.Annadurai, J.K.Tripathy & S.Nanda (2014)"Geospatial Analysis of coastal environment: A case from Bhitarkanika Mangroves forest, Odisha", Accepted in IJMS Journal.

D. Behera, D.R. Satapathy, S.K. Pattanayak and Pawan Kumar (2012). Assessment of Decadal change in Land use / cover using Geo- Spatial Technology for the region of proposed Alumina Refinery and Bauxite Mines, in Karlapat , Kalahandi District, Odisha. *Vistas in Geological research*, 11: 149-157.

Raghunathan.U, K.K. Barik, S.Potti, S. Nanada, **D. Behera,** A. Naik and S.P. Gauda (2013) Evaluation of vehicular air pollution against green space using geospatial technology – a case study. *Vistas in Geological research*, 12: 138-146.

Janisar M. Sheikh, Suresh C. Patel, **D. Behera**, N. Prabhakar (2015) Pyrochlore from Nepheline Syenite around Karlakot, Nuapada District, Odisha. *Vistas in Geological research*, 11: 149-157. **(ISBN: 81-900907-0-4)**

Sahoo, H.K., Mahanta ,N., (2011) Hydrogeological studies by resistivity method in the Drought –Prone Kuchinda Subdivision, Sambalpur district, Orissa. OMEGA 2011, Proceeding Volume, Vol-1,11-12 Aug,2011,pp.42-50

Mahanta ,N., Sahoo, H.K., (2015) "Hydro geological studies and Groundwater Resource Assessment in Kuchinda-Bamra Area of Sambalpur District, Odisha" published in book of Recent Advances in Mineral Development and Environmental issues pp.152-163 ISBN:978-93-81891-27-8

Monographs: Nil

Chapters in Books

K. K. Barik, D. Nandi and J. K. Tripathy (2015) "Hydrological Inferences and Morphometric analysis of Baitarani Basin, Odisha using remote sensing and GIS techniques" Geoinformatics Applications in Rural Development,pp. 739-754, ISBN;978-81-909728-9-5

K. K. Barik, J K Tripathy, S Nanda and S K Baliarsingh (2015) "Elevated Sea Surface Temperature Induced Coral Bleaching in the Gulf of Mannar, East Coast of India", *Recent Advantage in Mineral Development and Environmental Issues*, pp. 180-187, ISBN; 978-93-81891-27-8

Edited Books : NIL

Books with ISBN with details of publishers : NA

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

Citation Index – range / average

SNIP

SJR

Impact Factor – range / average

h-index

23. **Details of patents and income generated** : Nil
24. **Areas of consultancy and income generated** : Nil

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

Year	No. of Faculty
2010-11	Nil
2011-12	Nil
2012-13	Nil
2013-14	Nil
2014-15	02

26. Faculty serving in

a) National committees b) International committees c) Editorial Boards d) any other (please specify) : Nil

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

Year	No. of Faculty
2010-11	1
2011-12	1
2013-14	1

28. Student projects

- percentage of students who have done in-house projects including inter-departmental projects : 75%
- percentage of students doing projects in collaboration with other universities / industry / institute : 25%

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

- Faculty : NIL
- Doctoral / post doctoral fellows: NIL
- Students: NIL

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

Year	Seminar	Conferences	Workshops
2011-12	Nil	Nil	1 (National)
2013-14	1 (National)	Nil	Nil

31. Code of ethics for research followed by the departments : As per the University standard

32. Student profile programme-wise:

Name of the Course (refer to Qno. 4)	Year	Applications received	Selected		Pass percentage (%)	
			Male	Female	Male	Female
M. Sc.	**2010-11**	45	4	5	100	100
	2011-12	70	10	7	100	100
	2012-13	61	10	9	100	100
	2013-14	100	9	10	100	100
	2014-15	91	8	11	100	100
M.Phil	**2010**	5	0	2	100	85
	2011	7	4	3	100	100
	2012	5	1	4	0	100
	2013	3	2	1	100	100
	2014	9	3	3	100	100
M.Tech	**2012-13**	12	8	4	75	100
	2013-14	17	10	5	100	100
	2014-15	14	8	2	100	100

33. Diversity of Students:

Name of the Course (refer to question no. 4)	Year	% of students from the same university	% of students from other universities within the State	% of students from univ. outside the State	% of students from other countries
M. Sc	2010-11	70	30	0	0
	2011-12	70	30	0	0
	2012-13	70	30	0	0
	2013-14	70	30	0	0
	2014-15	60	40	0	0
M.Phil	2010	60	40	0	0
	2011	60	40	0	0
	2012	60	40	0	0
	2013	60	40	0	0
	2014	50	50	0	0
M.Tech	2012-13	50	50	0	0
	2013-14	47	40	13	0
	2014-15	50	50	0	0

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

1. Ms. Annapurna Tripathy - 2013 : NET (LS)

35. Student progression

Student progression	Percentage against enrolled				
	2010-11	2011-12	2012-13	2013-14	2014-15
UG to PG	NA	NA	NA	NA	NA
PG to M.Phil.	15	12	15	20	25
PG to Ph.D.	Nil	Nil	Nil	Nil	Nil
Ph.D. to Post-Doctoral	Nil	Nil	Nil	Nil	Nil
Ph.D. to Post-Doctoral	Nil	Nil	Nil	Nil	Nil
Employed	Nil	Nil	Nil	Nil	Nil
(i) Campus selection	Nil	Nil	Nil	Nil	Nil
Other than campus recruitment	Nil	Nil	Nil	Nil	Nil
Entrepreneurs	Nil	Nil	Nil	Nil	Nil

36. Diversity of staff

Percentage of faculty who are graduates of the same university	33%
from other universities within the State	67%
from universities from other States from	Nil
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 : NIL

38. Present details of departmental infrastructural facilities with regard to

a) Library : 600 nos. of books and journals

b) Internet facilities for staff and students : All are equipped with internet facilities

c) Total number of class rooms : 02

d) Class rooms with ICT facility : NIL

e) Students' laboratories : 01

f) Research laboratories **: NIL**

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

a) from the host institution/university : Nil

b) from other institutions/universities : Nil

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

41. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology. NO

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? N/A
b. students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback? N/A
c. alumni and employers on the programmes offered and how does the department utilize the feedback? N/A

43. List the distinguished alumni of the department (maximum 10)

i. Prof. A. Naik
ii. Dr. S.K.Pattnaik , Reader, Dept. of Environment Sciences
iii. Dr. N. K. Mishra, Field Asst. Dept. Of Earth Sciences
iv. Dr. Nandita Mahanta, Lecturer, Dept. Of Earth Sciences
v. Mr. N. N. Sing Deo, Geologist, Dept. Of Geology, Govt. of Odisha
vi. Dr. Atulya Mohanty, Scientist, NGRI, Hyderabad
vii. Mr. T. B. Munda, Deputy Director Geologist, Govt. of Odisha
viii. Mr. Uttam Kumar Pradhan, Geologist, GSI
ix. Mr. Ranjan Kumar Sahu, Inspector of Police
x. Mr. Rupak Ku. Mohanty, Geologist , ONGC
xi. Mr. Ratnakar Bhaisal, Geologist, GSI

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

- Providing field training to the student with help of expert's professor from IIT, GSI, National laboratories and state geological organisation.
- Tutorials classes are arranged for NET and GATE examinations
- Conducting weekly student's seminar for their personality development
- Scientific creative writing practices are conducted among the students.

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

a. Manual
b. Projector

46. How does the department ensure that programme objectives are constantly met and learning outcomes are monitored? Evaluating the students by adopting monthly test, conducting quiz programme, previous NET and GATE questions papers are discussed regularly.

47. Highlight the participation of students and faculty in extension activities. Our students and staff are regularly participating in campus cleaning programme organised by the department as well as the university. They are also involved in the conduct of blood donation camps as organisers and donors.

48. Give details of "beyond syllabus scholarly activities" of the department. The department encourages the students to contribute their creative writings to the Wall Magazine.

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. NA

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

Strengths

- The department has a strange alumni base.
- Teachers are highly qualified and technical staff are also technically sound to steer the department to a great height.
- The department students are well adept to the field knowledge since Odisha – our state contains rich store house of minerals and rocks.
- Good student teachers relationship which sharpens the personalities of our students to face new challenges of the present age.
- The department has very good collaborations with IITs and various National laboratories.

Opportunities

- The department students have good scope of employment in various national and international geo-companies, state and national geological organisations.
- Our students have enough potential to crack other competitive examinations conducted by various state and national level selection boards.
- Research facilities on collaboration are available to faculties and students.

Weaknesses

- Due to locational disadvantages our students are facing problems to share their views and be a part of competitive atmosphere.
- We do not have much space to develop specialised laboratories.
- Faculty strength is also low as compared to the students.

52. Future plans of the department.

- The department needs infrastructural facelift for its betterment for which the department has moved several organisations such as OMC etc. who can contribute a lot in form of funds to develop this department as a centre of excellence.
- The department also looks forward to start a master programme in geophysics wherein academic and research activities can be carried out considering this whole region as its experimental field.

SNAPSHOT OF DEPARTMENTAL ACTIVITIES