



Dr. ASHUTOSH RATH–Ph.D.

Designation : Associate professor

Department : CIVILENGINEERING

(Joined the Institution 2013)

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RESEARCH INTERESTS

- Irrigation and Water Management, Groundwater, Hydrology, Soft-Computing

ACADEMIC QUALIFICATIONS

Ph.D.(Optimal Irrigation Water Management, **VSSUT, Burla, Odisha, India**)

M.Tech(Water Resources Engineering) **VSSUT Burla, Odisha, India**

B.TECH,(Civil Engineering, **VSSUT Burla, Odisha, India**)

TEACHING EXPERIENCE/INDUSTRIAL EXPERIENCE/RESEARCH EXPERIENCE

Teaching Experience– 13years

Industrial Experience–14years

Research Experience- 5 years

PUBLICATIONS

JOURNALS

1. **Ashutosh Rath**, Prakash Chandra Swain, "Evaluation of performance of irrigation canals using benchmarking techniques a case study of Hirakud dam canal system Odisha, India," ISH Journal of Hydraulic Engineering, Taylor and Francis,26(1), 51-58, (2018)
2. **Ashutosh Rath** , Prakash Chandra Swain , "Optimal allocation of agricultural land for crop Planning in Hirakud canal command area using, swarm intelligence technique," ISH Journal of Hydraulic Engineering, Taylor and Francis,27(1), 38 -50, (2021)
3. **Ashutosh Rath** , Prakash Chandra Swain "Water allocation from Hirakud Dam, Odisha, India for irrigation and power generation using optimization techniques", ISH Journal of Hydraulic Engineering, Taylor and Francis, 27(3), 274 – 288, (2021)
4. **Ashutosh Rath** , S.Samantaray, S.and Prakash Chandra Swain "Discharge Measurement in Part of Hirakud Canal System, Odisha, India, Using Chiu's Equation," Journal of The Institution of Engineers (India): Series A, 100(3) 479- 486 2019.

5. **Ashutosh Rath** and Prakash Chandra Swain “Optimal Allocation of Water for Irrigation and Power Generation—A Case Study of Hirakud Reservoir, Odisha, India.” Taiwan Water Conservancy, 66(3) 21 -34 (2018)
6. **Ashutosh Rath**, S.Samantaray, S.and Prakash Chandra Swain Conjunctive use of groundwater and surface water in a part of hirakud command area, International Journal of Engineering and Technology (IJET), 9(4) 3002- 3010 2017.
7. S.Samantaray, Abinas Sahoo, **Ashutosh Rath** Optimal Irrigation Management at Mundoghat Canal Command Area of Hirakud Canal System using Particle Swarm Optimization, International Journal of Scientific Engineering and Research (IJSER), 5(7) 180- 185, 2017
8. **Ashutosh Rath** , S.Samantaray, and Prakash Chandra Swain Flow Measurement in Huma Tail distributary of Hirakud Command Area, India using Chiu’s Equation, Pertanika journal of science and technology, 27(1) 409- 420, 2019
9. **Ashutosh Rath** , S.Samantaray, and Prakash Chandra Swain Impact of Climate Change on the Mahanadi Basin – A Case Study, Disaster Advances, 11 (5) 38-42 (2018)
10. **Ashutosh Rath** , S.Samantaray, and Prakash Chandra Swain Flood Management in Hirakud Reservoir using Particle Swarm Optimization, Disaster Advances, 11(4) 11-17 2018
11. Rajashree Pany, **Ashutosh Rath** and Prakash Chandra Swain Water quality assessment for River Mahanadi of Odisha, India using statistical techniques and Artificial Neural Networks, Journal of Cleaner Production Elsevier, 417 (2023) 13771-3
12. **Ashutosh Rath**, Prakash Chandra Swain Review on Application of Optimization Techniques for Better Agriculture, Indian Journal of Technical Education, (Indian society for technical education) ,47(4),2024,170-180

BOOK CHAPTER

1. **Rath, A.**, Samantaray. And Swain, P. C “Optimization of the Cropping Pattern using Cuckoo Search Technique, Smart Techniques for a Smarter Planet, Studies in Fuzziness and Soft Computing, Springer, 19–35 (2019)
2. **Rath, A.**, Samantaray. S Raj, P.D Swain, P. C, Saeid Eslamian “Impact Assignment of Integrated Watershed Management in the Micro Watersheds of Sambalpur District, Odisha, India, Handbook of Water Harvesting and Conservation: Case Studies and Application Examples John Wiley & Sons, Lt, 341-358 (2021)
3. **Rath, A.**, Mishra, A Nikhindia, S Panda, S “Effect of climate change on the Agricultural system of Hirakud Command Area ,Disaster Risk Reduction for Resilience ,Vol (6),Springer Nature,59-76

1. **Rath, A.**, Samantaray, S. and Swain, P. C “Study of flow properties in Paramanpur canal Odisha, India using entropy theory113-119 (2017), **International Conference on Recent Advances in Mechanics & Materials.**
2. **Rath, A.**, Biswal, S., Samantaray, S. and Swain, P.C “Derivation of Optimal Cropping pattern in part of Hirakud command area using Cuckoo Search 01-11 (2017), **IOP Conference ,series Materials Science and Engineering, (ICMAEM-2017.**
3. **Rath, A.**, Biswal, S., Samantaray, S. and Swain, P.C “Application of Genetic Algorithm to derive an Optimal Cropping Pattern in Part of Hirakud Command.711–721 (2018), **Progress in Computing, Analytics and Networking Springer, Nature.**
4. Samantaray, S., Samantaray, S. **Rath, A.**,Mohanty .C.R “ Removal of Turbidity Using Dual Media Filter 302-311 (2017), ASCE India Conference 2017 **Urbanization challenges in Engineering Economics**
5. **Rath, A.**, Biswal, S., Samantaray, S. and Swain, P.C “Discharge measurement in Sambalpur Distributary of Hirakud canal system, Odisha, India using Chiu’s equation001-9 (2017), **49th Indian Water Works Association Convention Of IWWA ON ‘SMART WATER MANAGEMENT.**

INVITED LECTURE

1. Hydrological Analysis &GIS Application in Water Resources, **VSSUT BURLA** organized by ATAL (AICTE).

AWARDS

1. DAMODAR SAHOO MEMORIAL AWARD, INSTITUTION OF ENGINEERS, 2017 for Optimal Cropping pattern in Senhapali distributary of Hirakud command using Cuckoo search.
2. ER AVAYA CHANDRA NAYAK MEMORIAL AWARD, INSTITUTION OF ENGINEERS,2018, for Derivation of optimal cropping Pattern for the command area of Paramanpur distributary, Sambalpur, India using Particle Swarm Intelligence Technique
3. MANABIHARI MOHANTY MEMORIAL AWARD, 2024, INSTITUTION OF ENGINEERS for Conjunctive use of Surface and Groundwater in a part of Hirakud Command area for better Irrigation Management.
4. THE INSTITUTION AWARD AT THE 64TH ANNUAL TECHNICAL SESSION, INSTITUTION OF ENGINEERS,2025 for Application of Soft Computing Techniques for Irrigation Water Management to Get Maximum Profit from Cultivation: A Case Study of a Part of the Command Area of Hirakud System, Odisha, India’

5. Er. Govinda Chandra Sahu Award "INSTITUTION OF ENGINEERS,2026 Effects of Land Use–Land Cover Changes on Sediment Yield in a Part of the Hirakud Command Area."

PATENTS

Name	Title of Invention	Applicati on Number	Date of publication
Sandeep Samantaray,Abinash Sahoo,Subhashree samta singhar, Ashutosh Rath ,Deba.p.Satpathy	SOLAR POWERED CONCRETE MIXER	450487-001	05-06-2025
Sandeep Samantaray,Abinash Sahoo, Ashutosh Rath ,Deba.p.Satpathy	IOT-ENABLED SMART IRRIGATION	450488-001	23-06-2025
Abinash Sahoo, Sandeep Samantaray,Deepak k Naik, Ashutosh Rath ,Deba.p.Satpathy	WIRELESS TEMPERATURE ANALYZER	455436-001	18-07-2025
Abinash Sahoo, Sandeep Samantaray,Deepak k Naik, Ashutosh Rath ,Deba.p.Satpathy	SMART HUMIDITY DETECTOR	455437-001	07-.08-2025
Sandeep Samantaray,Soumendra K Mohanty, Ashutosh Rath , Prakash Chandra Swain, Deba.p.Satpathy	RESERVIOR FOR AGRICULTURAL IRRIGATION SYSTEM	470225-001	04-12-2025
Sandeep Samantaray,Deepak k Naik, Ashutosh Rath , Prakash Chandra Swain, Deba.p.Satpathy	DEVICE FOR MONITORING SURFACE EVAPORATION	470223-001	17-12-2025
Humaira Hamid, Sandeep Samantaray, Ashutosh Rath ,Abinash Sahoo,Deba.p.Satpathy	DEVICE FOR ANALYSIS OF HISTORICAL FLOOD DISCHARGE PATTERNS IN RIVER BASINS	461757-001	29-0--2025
Sandeep Samantaray,Deepak k Naik, Ashutosh Rath , Prakash Chandra Swain, Deba.p.Satpathy	GROUNDWATER DEPTH MONITORING DEVICE	470226-001	01-01-2026