Biographical sketch

1. Name: Dr. (Mrs). Susmita Mishra **2. Gender:** Female

3. Date of Birth: 23.12.1967

3. E-mail ID: smishra@nitrkl.ac.in; smishra1234@gmail.com

5. Qualifications

Sl. No.	Degree	Institution	Year	Division/Class
1	Post-Doctoral Fellow	Southern Illinois University, Carbondale, Illinois, USA	Jan, 2006 - Jan, 2007	NA
2	Ph.D. in Engineering	Indian Institute of Technology, Khargpur, WB	April, 2001- Aug, 2004	NA
3	M. E. (*Coal Chemicals and Fertilisers*)	Regional Engineering College, Rourkela, Odisha	Aug, 1993 - Jan, 1995	1st Class
4	B. E. in Chemical Engineering	Regional Engineering College, Rourkela, Odisha	Aug1988- June1992	1st Class

6. Employment Experience

Sl.No.	Position & Organisation	Nature of Job	Period
1	N.I.T, Rourkela	Lecturer	July 1997 - Jan 2006
2	SIU, IL, USA	Adjunct Graduate Faculty	Feb 2006 – Jan 2007
3	N.I.T, Rourkela	Associate Professor	July 2008 – Jan 2018
4	N.I.T, Rourkela	Professor	Feb 2018- continuing

7. List of PhD Guided (07)

Sl. No	Name of the student	Degree (year)	Research title	Status
1	Ramakrishna G	Ph.D (2012)	Preparation and Characterization of Microporous Activated Carbon from Biomass and its Application in the Removal of Chromium(VI) from Aqueous Phase	Awarded 2013
2	K. Tarangini	Ph.D (2014)	Studies on pigment production by micro-organisms using raw materials of Agro-industrial origin	Awarded 2015

3	Adya Das	Ph.D (2016)	A study on evaluation of indigenous microbial consortium for enhanced decolonization of textile azo dyes and feasibility for simultaneous bioelectricity generation in a microbial fuel cell	Awarded 2017
4	Harinandan Kumar	Ph.D	Estimation and simulation of gas permeability as well as stress-strain behavior of Indian coal seam for CBM production and CO2 sequestration at in situ condition	Awarded 2018
5	Sureshkumar Ayyalusamy	Ph.D	Preparation of activated carbon from polyethylene terephthalate and its application in pesticide detection and removal	Awarded 2020
6	R. Sandhyarani	Ph.D	Simultaneous production of antibiotics and phenol degradation by using microorganisms	Awarded 2021
7	Shilpi Das	Ph.D	Synthesis of Activated Carbon from Lignocellulose Biomass for Iron Removal	Awarded 2021
8.	Leonard	Ph.D	Treatment of mine seepage water using phytoremediation	On-going
9.	Pratima Minz	Ph.D	Preparation of activated carbon from agro-waste for fluoride removal	On-going
10.	Arpita Sahoo	PhD	Storage of CO_2 gas using activated carbon prepared from fruit shell	On-going

8. List of M.Tech (Research) Guided (06)

Sl. No	Name of the student	Year of Degree	Research title	Status
1	Shreeparna Mishra	2016	Preparation and Characterization of cassia 4-hydroxybenzoic acid	Awarded

			(CHBA) resin for chromium (VI) removal	
2	V.Balaji Patro	2013	Bio-transformation of Natural oil into industrial useful product	Awarded
3	Vamsi krishna. G	2012	Bio degradation of Petroleum Hydrocarbons	Awarded
4	Debadatta Das	2011	Treatment of Industrial Effluent using Mixed culture of micro-organisms in a bioreactor	Awarded
5	T.Deepthi	2010	Removal of zinc, nickel and copper ions from waste water using char- a sponge iron plant waste	Awarded
6	Alok Prasad Das	2009	Bio reduction based bioremediation of hexavalent chromium through potential indigenous microbes	Awarded

9. Total Number of **M.Tech** Thesis supervised**:** (12)

10. Total Number of **B.Tech** Thesis supervised**:** (30)

11. Sponsored Research Projects

Sl. No	Title	Sponsoring Agency and Officer Concerned	Period	Amount In Rs lakhs	Achievements
1	To study the feasibility of treatment of seepage water from chromite mines quarries of Odisha	Ministry of Mines, Govt. of India **PI**	April'2016-March' 2019	32.0	**Designed a bioreactor to treat the seepage mine water Completed**

2	Estimation and simulation of gas permeability as well as stress – strain behavior of Indian coal seam for CBM production and CO_2 sequestration at in-situ conditions	SERC-DST, Govt. of India **Co-PI**	Jan 2015-Dec 2017 and extended to August'2018	39.13	Gas adsorption and desorption study and simulation study. **Completed**
3	Design a cheap water filter to purify chromium contaminated water	DST, Govt. of India **PI**	Jan 2009-March 2013	9.89	Developed a new adsorbent and compared with available ones. PhD produced **Completed.**
4	Feasibility of CO_2 Sequestration in deep Indian coals	DST, Govt. of India **PI**	March 2008-Dec 2011	10	Coal samples at different depth were obtained and their CO_2 adsorption desorption potential were explored. Gas adsorption set up was fabricated. **Completed**
5	Isolation & characterization of Chromium-Resistant and reducing bacteria in a chromium-contaminated site	Institute of Engineers (India) **PI**	Nov 2007-Nov 2009	0.75	Cr(VI) concentration could be removed by 99% from high concn. Waste-water. **Completed**

11. Journal Publications

1. Mishra Susmita & Marcin Lutyuski, **2007**, "Temperature Effect on Methane Adsorption isotherm of Illinois Coal" Mining & Geology, Vol.2, No.4, 47-56.

2. Mishra .S and M.K.Mishra., **2007** "Dye adsorption on modified fly-ash" Ecological chemistry and Engineering, Vol 14, No.8, 837-845

3. Mishra S and J. Bhattacharya, **2007**" Batch studies on phenol removal using leaf litter activated carbon" Malaysian Journal of Chemistry, Vol.9. No.1, 051-059.

4. T.K.Sen, S.Mishra & R.Patel, **2008**, " Removal of Methylene Blue Dye from its Aqueous Solution by fruit Shell of Aegle mermelose as alternative Low Cost adsorbent" The Institute of Engineers (India), Volume 89, September, 33-38.

5. Alok Prasad Das & Susmita Mishra, **2008**, "Hexavalent Chromium (VI): Health Hazard & Environment Pollutant" Journal of Environmental Research & Development, Vol 2, No 8, 386-392.

6. Alok Prasad Das and Susmita Mishra., **2009** "Hexavalent chromium (Cr(VI) yellow water Pollution and its reduction. ENVIS Newsletter on Wetland Ecosystem. Volume 5, No 2.

7. Mishra.S., Prakash.D.J., Ramakrishna. G. **2009**, "Characterization and Utilization of Mahua oil Cake- A new adsorbent for removal of Congored dye from Aqueous phase" Electronic Journal of Environmental, Agricultural and Food Chemistry, 8 (6), 425-436.

8. Mishra S., Das,A., **2009**, "Hexavalent chromium reduction and 16SrDNA identification of Bacteria isolated from Cr(VI) contaminated site" The internet Journal of Microbiology, Vol 7, No. 1.

9. Mishra Susmita, Alok Prasad Das & Padma Seragadam, **2010**, "Isolation and characterization of nickel Resistant bacteria from Electroplating waste" Journal of Environmental Science Research International, Volume 1, No. 1, 1-9.

10. Ramakrishna Gottipati and Susmita Mishra., **2010** "Application of Biowaste (Waste generated in bio diesel plant) as an adsorbent for the removal of Hazardous dye-methylene blue from aqueous phase" ***Brazilian Journal of Chemical Engineering***, Volume 27, No. 2, 357-367.

11. Susmita Mishra and Ramakrishna Gottipati., **2010**, "Process optimization of Adsorption of Cr(VI) on activated carbons prepared from plant precursors by a two-level full factorial design" ***Chemical Engineering Journal***.

12. Alok Prasad Das and Susmita Mishra., **2010**, "Biodegradation of metallic Carcinogenic hexavalent chromium Cr(VI) by an indigeneously isolated bacterial strain. ***Journal of Carcinogenesis***, Volume 9, 1-7.

13. Ramakrishna Gottipati and Susmita Mishra, **2011**,"A kinetic study on pyrolysis and combustion characteristics of oil cakes- effect of cellulose and lignin content". ***Journal of Fuel chemistry and Technology*****,** volume 39, No- 4, 265-270.

14. T. Deepthi and Susmita Mishra, **2011**, "Removal of Zinc from aqueous solution on HCl Impregnated Sponge Iron Plant Waste: Optimization by DOE" ***International Journal of Engineering Science and Development*****.**

15. Vamsi Krishna Garapati and Susmita Mishra, **2012**, "Hydrocarbon Degradation using Fungal Isolate: Nutrients Optimized by Combined Grey Relational Analysis", ***International Journal of Engineering Research and Applications*** (IJERA), Vol. 2, Issue 2, 390-399.

16. Ramakrishna Gottipati, and Susmita Mishra. **2013**, "Simultaneous removal of trivalent and hexavalent chromium by activated carbon: Effect of solution pH and pore size distribution of adsorbent", ***Environmental Progress and Sustainable Energy***, Dec 201.Vol 32, Issue 4, pp 1030-35

17. Ramakrishna Gottipati, and Susmita Mishra. **2013**," Preparation of microporous activated carbon from Aegle marmelos fruit shell by KOH activation", ***The Canadian Journal of Chemical Engineering***, 91, Issue 7 July 2013, pp 1215-22

18. Ramakrishna Gottipati, and Susmita Mishra.**2012**," Application of response surface methodology for optimization of Cr(III) and Cr(VI) adsorption on commercial activated carbons", ***Research Journal of Chemical Sciences***, 2 (2), 40-48.

19. Ramakrishna Gottipati, Bharadwaj Adiraju, and Susmita Mishra.**2012**." Application of granular activated carbon developed from agricultural waste as a natural gas storage vehicle", IACSIT ***International Journal of Engineering and Technology,*** 4 (4), 468-470.

20. Tarangini Korumilli and Susmita Mishra. **2014**, "Carotenoid Production by Bacillus clausii using Rice Powder as the Sole Substrate: Pigment Analyses and Optimization of Key Production Parameters". ***Journal of Biochemical Technology***, Vol 5, No 4, 788-794.

21. Tarangini Korumilli and Susmita Mishra.**2014** "Production of Melanin by soil microbial isolate on fruit waste extract: Two step optimization of key parameters". ***Biotechnology Report*****,** 4, 139-146.

22. Tarangini Korumilli and Susmita Mishra,**2014**, "Carotenoid production by *Rhodotorula sp*. On fruit waste extract as a sole source and optimization of key parameters". ***Iranian journal of Chemistry and Chemical Engineering***, No 11, Vol 33, issue 3, 89-99.

23. Tarangini Korumilli and Susmita Mishra, **2013**, "Production, Characterization and Analysis of Melanin from Isolated Marine *Pseudomonas* sp. Using Vegetable waste". ***Research Journal of Engineering Science*****,** May, 40-46.

24. Das Debadatta and Mishra Susmita,**2015**, "Study of individual and simultaneous degradation of chromium (VI) and phenol using Two Potent indigenous microorganisms", ***Journal of Environmental Research and Development***, Vol 9. No 03, (2015): 530-540

25. S. Mishra, S. Tenneti and S. Mishra, **2015**, "Design of domestic scale bio-digester assembly, Experimentation for biogas production and comparison of results with conventional digester" ***Jurnal Teknologi***. Volume 75, Issue 11, 3 September: 51-59

26. Susmita Mishra , Srinivas Tenneti, **2015**, “Effect of Operational Parameters on Biogas Production using Tomato Waste as Substrate and Cow Dung as Inoculating Medium” ***International Journal of Science and Research (IJSR),*** IS Volume 4 Issue 5, May 2015, SN (Online): 2319-7064

27. Adya Das, Susmita Mishra and Vishal Kr. Verma, **2016**,” Enhanced biodecolorization of textile dye ramazol navy blue using isolated bacterial strain Bacillus pumilus HKG212 under improved conditions”, ***J Biochem Tech*** Vol 6 (3), 962-969

28. Harinandan Kumar, Susmita Mishra, M. K. Mishra, A. Parida. **2015**, ”Petrographical Characteristics of Bituminous Coal from Jharia Coalfield India: It’s Implication on Coal Bed Methane Potentiality” ***Prodecia Earth and Planetary science*** 11, 38-48

29. Adya Das and Susmita Mishra. **2016**, "Decolorization of Different Textile Azo Dyes using an Isolated Bacterium Enterococcus durans GM13." ***Int. J. Curr. Microbiol. App. Sci*** 5, no. 7, 676-686.

30. Ramakrishna Gottipati and Susmita Mishra, **2016**, “Preparation of microporous activated carbon from Aegle Marmelos fruit shell and its application in removal of chromium (VI) from aqueous phase”. ***Journal of Industrial and Engineering Chemistry***, volume 36,355-363

31. Adya Das and Susmita Mishra. **2017**,"Removal of textile dye reactive green-19 using bacterial consortium: Process optimization using response surface methodology and kinetics study." ***Journal of Environmental Chemical Engineering*** 5, no. 1,612-627.

32. Shilpi Das and Susmita Mishra. **2017**,"Box-Behnken statistical design to optimize preparation of activated carbon from Limonia acidissima shell with desirability approach." ***Journal of Environmental Chemical Engineering*** 5, no. 1, 588-600.

33. Harinandan Kumar, Susmita Mishra, M.K.Mishra. **2017**, “3D Modelling of Coal Deformation under Fluid Pressure using COMSOL Multiphysics” ***Journal of Engineering Science and Technology Review*** ,10 (6), 62 – 69 R.

34. Sandhyarani, Susmita Mishra. 2017, “Biodegradation of Toxic Pollutants with special emphasis on Phenolics” ***International Journal of Engineering, Technology, Science and Research***. Volume 4, Issue 11, November. ISSN2394 – 3386

35. Kumar H., Mishra M.K. and Mishra S. **2018**, "Laboratory investigation of gas permeability and its impact on CBM potential" ***Journal of petroleum exploration and production technology***. https://doi.org/10.1007/s13202-017-0425-0

36. Ayyalusamy, S., Mishra, S., & Suryanarayanan, V. **2018**. Promising post-consumer PET-derived activated carbon electrode material for non-enzymatic electrochemical determination of carbofuran hydrolysate. ***Scientific reports***, *8*(1), 13151.

37. Sangram Shamrao Patil, Hara Mohan Jena, and Susmita Mishra. **2018**. Kinetic modeling and metabolite identification of dimethyl phthalate biodegradation by Bacillus sp. KS1 isolated from municipal wastewater contaminated soil & quot. ***Desalination and Water Treatment***, 102, Jan,349–358

38. Suresh A and Susmita Mishra, **2018**. "Optimization of preparation conditions for activated carbons from polyethylene terephthalate using response surface methodology" ***Brazillian Journal of Chemical Engineering,*** vol.35, no.3, p.1105-1116.

39. Harinandan Kumar, M.K.Mishra and S.Mishra, **2018**, "Effect of Permeability and Geo-mechanical Properties on Coal Matrix During CBM Production –An Overview", ***Journal of Engineering Science and Technology Review***, EMaTTech Publi,11 (2), pp 160 –173, doi:10.25103/jestr.112.22

40. Das, A. and Mishra, S., **2019**. Complete biodegradation of azo dye in an integrated microbial fuel cell-aerobic system using novel bacterial consortium. ***International Journal of Environmental Science and Technology***, 16(2), 1069-1078.

41. Sandhyarani, R. and Mishra, S., **2019**. Isolation and characterization of phenol degrading organism, optimization using Doehlert design. ***Desalination and Water Treatment***, 148, 351–362

42. Harinandan Kumar, M K Mishra and S Mishra, **2019**, "Sorption capacity of Indian coal and its variation with Rank Parameters", ***Journal of Petroleum Exploration and Production Technology***, Feb, pp 1-10 https://doi.org/10.1007/s13202-019-0621-1

43. Harinandan Kumar, M K Mishra and S Mishra, **2019**, "Experimental and Numerical evaluation of CBM potential in Jharia Coal field India". **Geomechanics & Geophysics for Geo-Energy & Geo-Resources**, 5, 289-314.

44. S Das, S Mishra , **2020**."Insight into the isotherm modelling, kinetic and thermodynamic exploration of iron adsorption from aqueous media by activated carbon developed from Limonia acidissima shell" ***Materials Chemistry and Physics***, Vol 245, pp- 122751.

45. Panda, A., Kumar, A., Mishra, S., & Mohapatra, S. S. **(2020)**. Soapnut: A replacement of synthetic surfactant for cosmetic and biomedical applications. Sustainable Chemistry and Pharmacy, 17, 100297.

46. Harinandan Kumar & Manoj Kumar Mishra & Susmita Mishra & M. Muralidhar Singh & Dilip Kumar Srivastava **2021** "Determination of methane sorption capacity using microstructural analysis in coal of Jharia Coalfield, India" Vol 14, pp-690.

47. Das, S., & Mishra, S. **(2021)**. Artificial neural network (ANN) approach for prediction and modeling of breakthrough curve analysis of fixed-bed adsorption of iron ions from aqueous solution by activated carbon from Limonia acidissima shell. International Journal of Chemical Reactor Engineering, 19(11), 1197-1219.

48. Leonard, J., & Mishra, S. **(2021)**. Optimization of growth conditions for maximum hexavalent chromium reduction by the microbial consortium isolated from chromite mines. Indian Journal of Experimental Biology (IJEB), 59(12), 867-876.

49. Das, S., & Mishra, S. **(2021)**. Batch and column investigation of copper (II) removal from aqueous media onto biochar prepared from Limonia acidissima shell. International Journal of Materials and Product Technology, 62(1-3), 141-151.

50. Leonard, J., & Mishra, S. **(2022)**. Optimization of Parameters for the Detoxification of Cr (VI) by the Microbial Consortium Developed from the Isolates of Chromite Mines. Geomicrobiology Journal, 1-13

12. Conference Papers (selected)

1. Shilpi Das and S. Mishra, "A comparative study on the statistical optimization of the synthesis of activated carbon from *Limonia acidissima* shell activated with $ZnCl_2$ & H_3PO_4", International Conference and Exhibition on Energy & Environment: Challenges & Opportunities, Vigyan Bhawan, CSIR, New Delhi **20th -22nd Feb**, **2019**, 690-697

2. Harinandan Kumar, M.K. Mishra, and S. Mishra, "Laboratory Investigation of Gas Permeability and its Impact on CBM Potential", Proceedings of the *National Conference on Waste to Energy, Carbon Capture and Storage* (NCWECCS – 2017), **3rd August, 2017**, NIT Rourkela.

3. Adya Das and Susmita Mishra, Decolorization of Ramazol Navy Blue and simultaneous electricity production using developed consortium in dual chambered microbial fuel cell. *International conference on Recent Trends in Engineering and Material Sciences*,**17th March- 19th March, 2016** Jaipur National University.

4. Harinandan Kumar, Susmita Mishra, M.K.Mishra, and A Parida "Petrographical Characteristics of Bituminous Coal from Jharia Coalfield India: Its Implication on Coal Bed Methane Potentiality" Proceedia of Earth and Planetary Science, *Int. Conf. on Global Challenges, Policy Framework & Sustainable Development for Mining of Mineral and Fossil Energy Resources*, **August'2015**, UK

5. Adya Das and Susmita Mishra. Decolorization and Degradation of Reactive Green Dye using Biological Treatment, CHEMCON, **27th Dec- 30th Dec, 2013.**

6. Adya Das and Susmita Mishra. Decolorization of Synthetic Dyes Using Marine Microorganisms ICFCE **16th Dec-17th Dec, 2013, N.I.T**, Rourkela.

7. Susmita Mishra and T. Deepthi, Ascertaining the significance of design parameters involved in Zn adsorption using char (Sponge iron plant waste), Proceedings of *International conference on Recent Advances in Chemical Engineering and Technology (RACET),* **10thMarch-12thMarch, 2011**, Kochi, India.

8. Susmita Mishra and Vamsi Krishna, Degradation of petroleum hydrocarbons using micro-organism. Proceedings of International conference on *Recent Advances in Chemical Engineering and Technology (RACET-2011),* **10thMarch-12thMarch,2011,** Kochi, India.

9. Ramakrishna Gottipati, and Susmita Mishra. Treatment of Cr(VI) in the Sukinda Mine Water Discharges. *Conference on Emerging Trends in Mining and Allied Industries*, N.I.T., Rourkela, India.

10. Susmita Mishra and Tanu Singh. Removal of Nickel using anion exchange resin. Proceedings of Indian Chemical Engg Congress, **27th Dec-29th Dec, 2011**.

11. A.P. Dasand S. Mishra. Bioremediation of Hexavalent chromium [Cr (VI)] contaminated wastewater by a microbial strain of Brevebacterium casei. The 3rd IWA APYWP Conference, **21st Nov-24th Nov 2010**, National University of Singapore.

13. Courses Offered:

(i) Fundamentals of Biochemical Engineering

(ii) Environmental Biotechnology

(iii) Processing & Handling of Materials

(iv) Bioprocess engineering

(v) Environmental Management System

(vi) Treatment of Industrial effluent

15. Laboratory Developed:

(i) Biochemical Engg lab **(ii)** Environmental Research Lab

17. Administrative responsibilities undertaken:

(i) Warden (KMS, hall of residence)- July' 2009 to June'2012

(ii) PIC, Common Classroom facilities of Institute- April'2015 to June'2017

(iii) Coordinator for Accreditation period -2009 to 2014

(iv) PIC, Curriculum- 2011- 2016

(v) PIC Direct Purchase of the department-2018 - 2020

(vi) PIC International students : 2019 -2021

(vii) PIC, Examination: June'2019 -2021

(viii) Dean, Academic: July'2021 onwards

18. Academic Outreach

(i) Evaluated PhD thesis

(ii) Reviewed Journal Papers (Journal of Hazardous materials, ACS Sustainable Chemistry & Engineering etc.)

(iii) Talk on " Chemical Disaster & Prevention- A Challenge" at Rourkela Steel Plant, on 4th December 2009.

(iv) Invited to Global Ecocarb Pvt. Ltd, Bangalore for industry-institute collaborative research 22nd -23rd June, 2016

(v) Life Members of various professional societies: Institute of Engineers; IIChE etc.