

ANNUAL REPORT
(01.07.2023 to 30.06.2024)

DEPARTMENT OF ENVIRONMENTAL SCIENCE & ENGINEERING

- (I) **Name** : Environmental Science & Engineering
- (II) **Year of Establishment** : 1994
- (III) (a) **Vision of the Department**: Pursuance for excellence to achieve Sustainable Development.
- (b) **Mission of the Department**: To impart training for capacity building, to tackle various Environmental Challenges in an Eco-friendly manner.
- (c) **State the objective of the Department**:
- i) To offer professional and job oriented Course curricula
 - ii) To strengthen R & D activities.
 - iii) To offer consultancy and extension activities to stakeholders
- (IV) **Programme (s) offered in the department**

Programme	Sanctioned intake	Present students' strength
Ph.D.	12	10
P.G.		
M.Sc. (EVS)	55	21
M.Tech. (ESE)	20	8
M.Tech (GIS)	20	10
U.G	----	--
Any other	----	--

- (V) **Faculty details (Attach a list of the Faculty along with their qualifications, teaching and research experiences, and any specific achievements (if any))**

	<i>Sanctioned</i>	<i>Filled</i>	Under CAS
Professor	2	----	
Associate Professor	2	-----	
Assistant Professor	8	5 +6	6 are promoted as Professor

List of the Regular Faculty along with their qualification and experience

Name of Teacher	Designation	Qualification	Experience (Years)
Dr. Parveen Sharma	Professor	M.Sc., Ph.D.	27.5
Dr. (Ms.) Asha Gupta	Professor	M.Sc., Ph.D.	25
Dr. Mukul Bishnoi	Professor	M.Sc., Ph.D	25
Dr. Rajesh Kumar	Professor	M.Tech.,Ph.D	19.5
Dr. Jitender Pal	Professor	M.Tech.,Ph.D	19.5
Dr. Anu Gupta	Assistant Professor	M.Tech.,Ph.D	12
Dr. Santosh Bhukal	Assistant Professor	M.Sc., Ph.D.	8.5
Dr. Anita Singh Kirrolia	Assistant Professor	M.Sc., Ph.D.	10
Dr. Lakhvinder Singh	Assistant Professor	M.Sc., Ph.D.	10

(VI) Office staff details

Designation	Sanctioned	Filled
Assistant-cum-DEO	1	-
Lab.Tech. Instrumentation	1	-
Store Keeper	1	1
Technical Asstt. Gr.II	1	-
Lab.Attdt	3	3
Clerk	1	1
Steno-Typist	1	1
Peon	2	2
Technical Asstt.Gr.I	1	2
Lab. Technician	2	2

(VII) a. Students detail in respect of M.Sc., M.Tech. M.Pharm., M.Ph.Th., M.Com. MBA and MCA Programmes

Programme	Sanctioned Intake	Students admitted 1 st Year	Students Present in Final Year
Ph.D.	12	12	10
M.Sc. (EVS)	55	21	21
M.Tech. (ESE)	20	8	8
M.Tech (GIS)	20	10	10

b. Students' detail in respect of B.Tech., B.Pharm. and B.P.Th. Programmes: NA

c. Detail of Foreign Students if any, admitted in the Department: NA

(VIII) Research Scholars

Intake capacity	Total no of Ph.D. students	Registered during the year	Thesis completed during the year	Specify number of different fellowships
As per University norms	50	12	12	UGC-BSR, NFOBC, JRF, NFSC, AICTE

(IX) Sponsored Research/ Consultancy Projects:**(a)**

Total No. Of projects in progress during the academic current year	Total no. Of Projects awarded during academic current year	Total No. Of projects completed during academic current year
03	01	01

(b)

Title of the Project	Name of the Investigator(s)	Status: Completed/ In progress	Nature: Research/ Consultancy	Month & Year of Award
Removal of Synthetic Dye from Aqueous Solution using Biosorbent	Dr. Lakhvinder Singh	Completed	Research	2023
Plant based nanoparticles: A green prospect for wastewater treatment	Dr. Anita Singh Kirrolia	Completed	Research	Nov 2023

(X) Number of Publications of the Faculty (in Total)

Books and Book Chapters/Monographs etc		Research papers		Research papers		Other Articles
International	National	SCI/Scopus	UGC Care	Refereed	Non refereed	
06	02	40	30	40		

(XI) Faculty wise detail of publication during the period

a) Books/Book Chapters/ Monograph etc.

Sl. No.	Name of the teacher	Title of the book/chapters published	Title of the paper	Year of publication	ISBN/ISSN number of the proceeding	Name of the publisher
1	Praveen Sharma	Appraisal and Identification of Algal Bloom Region, Prevention and Management Approaches		2024	978-981-97-2371-3	Springer
2	Praveen Sharma	Microbes as Environmental Allies: From Wastewater Treatment to Sustainable Biofuel Production		2024	978-981-97-1154-3	Springer
3	Prof Asha Gupta	Nitrate Contamination in Groundwater of Arid and Semi-Arid Regions, Ecotoxicological Impacts, and Management Strategies The Handbook of Environmental Chemistry, Springer		2024	Print ISBN978-3-031-53776-9	Springer, Nature
4	Dr. Santosh Bhukal	Agri roots	Unlocking Nature's Potential: Green Synthesized Nanoparticles Paving the Way for Sustainable Agriculture	2024		Agri roots
5	Dr. Santosh Bhukal	Hydroponics and Environmental Bioremediation: Wastewater Treatment	Sustainable Approach for Agriculture and Environmental Remediation using Hydroponics and their Perspectives	2024		Springer publisher
6	Dr. Santosh Bhukal	Technology-mediated Learning During the Pandemic,	E-learning: An attribute to Physical, Psychological and Mental Distress Among Students	2024		RoutledgeTaylor & Francis Group

7	Dr. Santosh Bhukal	Technology-mediated Learning During the Pandemic	Challenges in Conducting Practical Courses during Covid-19	2024		Routledge Taylor & Francis Group
8	Dr. Santosh Bhukal	Emerging Environmental Applications of Nanozymes	The Role of Metallic Nanoparticles in Maximizing Crop Production	2024		International Nova Science Publishers, Inc.

XI (b) Research Papers/ Publications

Serial No.	Title of paper	Name of the author/s	Name of Journal	Year of Publication	Publisher	Vol No.	Pages	SCI/SCOPUS (Yes/No)
1	Optimizing leachate treatment with titanium oxide-impregnated activated carbon (TiO ₂ @ASC) in a fixed-bed column: characterization, modeling, and prediction study	Rajesh Kumar Lohchab	Environmental Science and Pollution Research	2023	Springer	30	88450 to 88462	Yes
2	Green Technology for Biogas Production through Anaerobic Digestion: An Effective Biomass Management Strategy	Rajesh Kumar Lohchab	Research Square	2023	Springer			Yes
3	Degradation of ammoniacal nitrogen (NH ₃ -N) in leachate by zinc oxide loaded activated carbon: Process parameters modelling and optimization through RSM design	Rajesh Kumar Lohchab	Bioresource Technology Reports	2023	Elsevier	24		Yes
4	Potential of Rice Straw as Biotemplate of TiO ₂ Nanoparticle Synthesis	Rajesh Kumar Lohchab	Annals of Agri Bio Research	2023	Agri Bio Research	28	7 to 11	Yes
5	A Facile Method for Synthesis of α -Fe ₂ O ₃ Nanoparticles and Assessment of Their Characterization	Rajesh Kumar Lohchab	Nature Environment and Pollution Technology	2024	Technoscience	23	321 to 323	Yes

6	Using predictive models unravel the potential of titanium oxide-loaded activated carbon for the removal of leachate ammoniacal nitrogen	Rajesh Kumar Lohchab	Environmental Monitoring and Assessment	2024	Springer	19 6		Yes
7	A comprehensive review on anaerobic digestion with focus on potential feedstocks, limitations associated and recent advances for biogas production	Rajesh Kumar Lohchab	Environmental Science and Pollution Research	2024	Springer			Yes
8	Nanomaterials for sustainable remediation: efficient removal of Rhodamine B and lead using greenly synthesized novel mesoporous ZnO@CTAB nanocomposite	Praveen Sharma	Environmental Monitoring and Assessment	2024	Springer	19 6		Yes
9	Greenly synthesized novel microporous ZnO/GO for adsorption of methyl orange and malachite green	Praveen Sharma	International journal of Environmental Analytical Chemistry	2024	Taylor and Francis			Yes
10	Optical and structural behavior of hydrothermally synthesized ZnO nanoparticles at various temperatures with NaOH molar ratios	Praveen Sharma	Results in Optics	2024	Elsevier	14		Yes
11	Bioremediation of RDX and HMX contaminated soil employing a biochar-based bioformulation	Praveen Sharma	Carbon Research	2023	Springer	2		Yes
12	Comparative Evaluation of Low-and Medium-Pressure UV Lamps for Photo-degradation of RDX Wastewater	Praveen Sharma	Water, Air, & Soil Pollution	2023	Springer	23 4		Yes
13	Sustainable approach for adsorptive removal of cationic and anionic dyes by Titanium Oxide nanoparticles synthesized biogenically using algal extract of Spirulina	Praveen Sharma	Nanotechnology	2023	IOP Publishing			Yes

14	Microbial Degradation of Explosive Manufacturing Facility Wastewater in a Bioreactor	Praveen Sharma	International Journal of Environmental Research	2023	Springer	17		Yes
15	Sequestration of Cd (II) utilizing biowaste-fabricated recyclable mesoporous magnetite (Fe ₃ O ₄) nano-adsorbent: process optimization, thermodynamic investigation, simulation modeling, and feasibility for electroplating effluent	Subhash Chander, Sangita Yadav, Hardeep Rai Sharma, Asha Gupta*	Journal of Alloys and Compounds	2024	Elsevier	986		Yes
16	Sequestration of Ni (II), Pb (II), and Zn (II) utilizing biogenic synthesized Fe ₃ O ₄ /CLPC NCs and modified Fe ₃ O ₄ /CLPC@ CS NCs: Process optimization, simulation modeling, and feasibility study	Subhash Chander, Sangita Yadav, Asha Gupta*	Environmental Science and Pollution Research	2023	Springer	30	114056 to 114077	Yes
17	Decolorisation of textile wastewater using biosynthesised iron oxide nanomaterials and Optimisation by Response Surface Methodology	Sangita Yadav, Subhash Chander, Asha Gupta*	ChemistrySelect	2024	Wiley	9		Yes
18	Biogenic engineered zine oxide nanoparticle for sulfur black dye removal from contaminated wastewater: comparative optimisation, simulation modelling and isotherms	Sangita Yadav, Subhash Chander, kataria N. K., Asha Gupta*, Khoo, K. S., *	Bioengineered	2024	Taylor and Francis	15		Yes
19	Microbially synthesised Zn@Fe ₃ O ₄ (M) and Zn@Fe ₃ O ₄ (ME) nanocomposites for textile effluent: Central composite design optimisation and kinetic modelling	Sangita Yadav, Subhash Chander, Asha Gupta*	Surfaces and interfaces	2024	Elsevier	46		Yes
20	Binary colour adsorption by Zinc@magnetite nanocomposites: robust parametric optimisation using Taguchi method	Yadav, S., Chander, S., Kumari, S., & Gupta, A	Vietnam Journal of Chemistry	2024	Elsevier	46		Yes

21	Designing design of expert (DOE) for treatment of sulfur black dye in textile effluent using zinc oxide nanobioadsorbents	Sangita Yadav, Subhash Chander, Asha Gupta*	Current Science	2024	Indian academy of sciences			Yes
22	Removal of Indigo Blue Dye Using Iron Oxide Nanoparticles- Process Optimization Via Taguchi Method.	Yadav, S., Chander, S., Kumari, S., & Gupta, A.	Oriental Journal of Chemistry	2023	OSPC	39	364	Yes
23	Evaluation of efficiency of Wheat straw nanocellulose as nanoadsorbent for the removal of divalent copper, lead and zinc from aqueous solution	Mandeep Kaur , Jitender Pal	Carbohydrate Polymer Technologies and Applications	2023	Elsevier	6		Yes
24	Synthesis of nanocellulose for the removal of naphthalene from simulated wastewater	Pooja Ranwala, Jitender Pal, Vinod Kumar Garg, Shakuntala Rani	Chemical Papers	2023	Springer	77	6029 to 6039	Yes
25	Synthesis and characterization of zinc oxide nanocomposite for fluoride ion removal from aqueous solution	Savita Sihag , Jitender Pal	Environ Monit Assess	2023	Springer	19 5		Yes
26	Adsorption of fluoride ions from aqueous solution by rice husk based nanocellulose	Savita Sihag , Jitender Pal	Advances in Environmental Technology	2023	IROST	9	194 to 214	Yes
27	Comparative investigation of naphthalene and pyrene adsorption by modified nanocellulose with titanium oxide	Pooja Ranwala, Jitender Pal	Chemical Papers	2024	Springer	78	4175 to 4187	Yes

28	Removal of lead ions from aqueous solution by modified nanocellulos	Sheetal , Jitender Pal	Environ Monit Assess	2024	Springer	196		Yes
29	CSR in engineering education: evidences from India and abroad	Ashish Bhardwaj, Anu Gupta, Samira Tawangar,	Int. J. Business Innovation and Research,	2024	IJBIR	34	19 to 40	Yes
30	Exploring the collaborative wonders of Al ₂ O ₃ -Mn ₃ O ₄ -Fe ₂ O ₃ nanoparticles embedded in reduced graphene oxide matrices	Rahul Sharma, Harish Kumar, Chetna Saini , Anu Gupta , Vaidehi Pandit	Inorganic Chemistry Communications, 162(2024), 11275	2024	Elsevier	162		Yes
31	Synthesis and Characterization of nano-adsorbent from Chemically modified Parthenium hysterophorus for treatment of industrial wastewater	Anu Gupta, Pardeep Rao	Int. J. of Nano and Biomaterials,	2024	Inderscience	10	204 to 220	Yes
32	Removal of chromium (VI) using <i>spirulina</i> assisted synthesized mesoporous iron oxide nanoparticles	Rishi Mittal, Anuj Sharma , Abhishek Kumar Bhardwaj , Rachna Bhateria, Shafila Bansal, Rajiv Kashyap, Santosh Bhukal	Inorganic Chemistry Communications	2023	Elsevier	154		Yes
33	Hydrophobic ionic liquid (IL)-based magnetic adsorbents: the way forward to remediate water pollution	Divya Yadav, Karmjeet Nain, Divya Dhillayan, Rishi Mittal, Shafila Bansal and Santosh Bhukal	Environmental Science: Advances	2024	Royal Society of Chemistry	3	480 to 501	Yes

34	Optimization of Cultivation Conditions of Native Microalga <i>Scenedesmus quadricauda</i> and Evaluation of Lipids for Enhanced Biodiesel Production	Anita Singh Kirrolia and Narsi R. Bishnoi	Indian Journal of Microbiology	2024	Springer	64	1009 to 1024	Y e s
35	Physicochemical characterization of rice straw before and after alkali-assist photocatalytic pretreatment: a comparative analysis.	Sethi, N., Luhach, N., Kirrolia, A. S., Gupta, A., Bishnoi, N. R., Dhull, S. B. and Rose, P. K	<i>Environ. Sci. Polln. Res.</i>	2024	Springer			Y e s
36	Response surface methodology as a statistical tool for optimization and FAME profile by GC-MS for assessing microalgae <i>Scenedesmus quadricauda</i> as a potential biodiesel feedstock.	Kirrolia, A. S., Bishnoi, N. R., Kumar, A. and Brindhadevi, K.	<i>J. Taiwan Inst. Chem. Engn.</i>	2024	Elsevier			Y e s

37	Moth Bean (<i>Vigna aconitifolia</i>) Starch: Properties, Modifications and Applications- A Review	Dhull, S. B., Rani, J., Rohilla, S., Rose, P. K., Chawla, P., Kidwai, M. K., Chandak, A. Bamel, P., Kumar, M. and Kirrolia, A. S.	<i>Legume Science</i>	2024	Wiley	6		Y e s
38	Optimization of alkali pre-treatment of sweet sorghum (<i>Sorghum bicolor</i> L. Moench) residue to improve enzymatic hydrolysis for fermentable sugars	Pallavi Punia and Lakhvinder Singh	Waste Management Bulletin	2024	Elsevier	2	131 to 141	Yes
39	Evaluation of free and immobilized cellulase on chitosan-modified magnetic nanoparticles for saccharification of sorghum residue	Pallavi Punia and Lakhvinder Singh	Bioprocess and Biosystem Engineering	2024	Taylor and Francis	42	661 to 677	Yes
40	Functionalized magnetic nanoparticles for Cellic Ctec2 cellulase immobilization: Allowing reusability of enzyme in the conversion of cellulosic biomass	Pallavi Punia and Lakhvinder Singh	Biocatalysis and Biotransformation	2024	Springer	47	737 to 751	Yes

(XII) Participation of faculty in Seminars/Conferences/Workshops/Webinars and Refresher Courses etc. during the period

(a) Total Number of Seminars/Conferences attended by faculty and papers presented

Positions	Attended			Papers presented		
	International	National	Total	International	National	Total
Professors, Associate Professors & Assistant Professors	08	-	08	8	-	8

(b) International Conferences/ Seminars/ Workshops/Webinars

Name of the Teacher/Faculty	Title of paper presented	Theme of conference/Seminar/Workshop	Name of Host organization	Place	Dates/Duration	Funded by UGC/DST/CSIR/AICTE/University
Dr. Santosh Bhukal	Adsorption potential of ionic liquid modified nanoparticles for highly efficient removal of water pollutants	7 th International Conference on CSR & Sustainable Development”	Society For Education and Research Development India & Janabadra University, Yogyakarta Indonesia.	Yogyakarta Indonesia.	10-11 June 2024	-
	Exploring the use of Hydrophobic ionic liquid for waste water treatment	International conference on Global Challenges in Environment, Food and Biotechnology for Sustainable Development	Faculty Of Environmental, Food and Biotechnology, GJUS&T Hisar	Hisar	21-23 Feb. 2024.	
	Synthesis of Ionic liquid (IL)-based adsorbent : A greener approach and their environmental applications	4 th international sustainability conference on health safety, fire and environmental advances	School of Advanced Engineering, UPES Bidholi, Dehradun, Uttarakhand	Bidholi, Dehradun	30-31 October 2023.	
Dr. Anita Singh Kirrolia	Nanotechnology: A Substantial Advancement in Biofuel Production	Online International Conference on Himalayan Environment in Changing	University of Ladakh (Mountain Research Institute)	Ladakh	September 19 th -23 rd , 2023	

		Climate Scenario				
	Catalytic Role of Renewable Energy in Socioeconomic Growth of Rural Haryana.	Online International Seminar on 'Sustainable Development and Global Issues	UGC-Human Resource Development Centre Bhagat Phool Singh Mahila Vishwavidyalaya in association with Shiksha Sanskriti Utthan Nyas		October 7, 2023	
	Exploring Medicinal Plant Extracts for Zinc Oxide Nanoparticle Synthesis: Selection and Testing	4 th International Sustainability Conference on Health, Safety, Fire, and Environmental Advances (HSFEA 2023)	Sustainability Cluster, School of Advanced Engineering, UPES Bidholi, Dehradun, Uttarakhand (India) - 248007	Dehradun, Uttarakhand	30-31 October 2023.	
	Opportunities and challenges for the Production of Microalgae based Biofuel	4 th International Sustainability Conference on Health, Safety, Fire, and Environmental Advances (HSFEA 2023)	Sustainability Cluster, School of Advanced Engineering, UPES Bidholi, Dehradun, Uttarakhand (India) - 248007	Dehradun, Uttarakhand	30-31 October 2023.	
	Plant-Based Nanoparticles: An Eco-Friendly Option for Treating Wastewater	International Conference on Global Challenges in Environment, Food and Biotechnology for Sustainable Development (ICEFB24).	GJUS&T, Hisar	Hisar	February 21-23, 2024	

(c) National Conferences/ Seminars/ Workshops

Name of Teacher/ Faculty	Title of paper presented	Theme of conference/ Seminar	Name of Host organization	Place	Dates/ Duration	Funded by UGC/DST/ CSIR/ AICTE/University

--	--	--	--	--	--	--

(d) **Regional/ State Level Conferences/ Seminars/ Workshops: NIL**

(e) **Orientation Courses/Refresher courses: 01**

Name of Teacher/Faculty	Title of FIP/ Refresher Course	Host organization	Date
Dr.Anu Gupta	STC on Presentation Skills for Effective Curriculum Implementation	NITTTR, Chandigarh	10.6.2024-14.6.2024
Dr, Lakhvinder Singh	UGC-Sponsored Faculty Induction Programme (FIP)	MMTTC, Punjabi University, Patiala	9.1.2024-6.2.2024

(f) **National/International Webinars Attended**

Name of Teacher/Faculty	Title of Webinar	Host organization	Date

(g) **Total number of Oriented Courses attended:**

- i. Oriented Courses/Refresher Courses :02
- ii. Webinars :00
- iii. Total :00

(XIII) **Association with National and State Level Bodies (Give teacher-wise details): NA**

(XIV) **Detail of Consultancy Project/Work in Department: -NA**

(XV) **Lectures (other than class) delivered (Give teacher wise detail): Nil**

(XVI) **Additional Duties Performed/Positions held in the University (Teacher-wise)**

Sr. No.	Name of Teacher	Additional Positions	Duration From To
1	Prof. Praveen Sharma	Dean International Student	2022
2.	Prof. Asha Gupta	Dean Faculty of FBEST, Chairperson, Deptt. of Civil Engg.	2022, 2019-Till date
3.	Prof. Rajesh Kumar	Chairperson, Deptt. of ESE	2020 To 2023-24
4.	Dr. Anu Gupta	Coordinator, GH-II, Girls Hostel	Oct, 2018- Till 2 july 2024
6.	Dr. Santosh Bhukal	Village Programme Officer under "Swachh Bharat Swasth Bharat" scheme.	2018 Till date

(XVII) Training/Internship& Placement activity Information of the Department: Nil

(XVIII) Detail of Academic Activities/Professional Activities/ Programmes Organized in Department during the year:

i. Seminar / Conference / Refreshers course / Workshop / Training Programme / webinar

Name of the Event	National/ International	Number of Participants	Duration	Dates of the Event
International conference	International conference	300	3 days	21-23 Feb. 2024.

ii. Extension lecture: (with resource person & date): Nil

iii. Students tour Nil

iv. Industry interaction programs: (with name of company & date): NA

(XIX) Awards/ Honours received by Faculty (Give teacher-wise details about title of award, awarding agency and date of conferment): -

Dr. Anu Gupta	AAUW FELLOWSHIP	June ,2024	AAUW , USA
---------------	--------------------	------------	------------

(XX) Any other important Information/ Achievement of the Department: Nil