Evaluative Report of the Department

1. Name of the Department : **School of Energy and Environment**

2. Year of establishment : **2012**

3. Is the Department part of a School/Faculty of the university? N/A

4. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.)

Title	Field of Specialization	Sanctioned Intake	Duration (Years)	Year of Starting
Post-Graduate Programs	M.Tech - Environmental Science and Technology	25+5 (industry sponsored)	2	2002 (as a part of Dept of Biotechnology and Environmental Sciences)
	M.Sc - Environmental Science	20	2	2013
Research Programs	PhD	Average of 6 per faculty	4-5	2012

5. Interdisciplinary programmes and departments involved: N/A

6. Courses in collaboration with other universities, industries, foreign institutions, etc. N/A

7. Details of programmes discontinued, if any, with reasons: N/A

8. Examination System: Annual/Semester/Trimester/Choice Based Credit System : Semester

9. Participation of the department in the courses offered by other departments :

The Faculty of the department are involved in following courses offered by other departments

Program	Course
BE/B.Tech across all branches (For First Year)	Environmental Studies
BE Civil Engineering	Sewage and Sewerage Treatment
	Water and Wastewater Engineering
BTech Biotechnology	Unit Processes and Operations - I
	Unit Processes and Operations - II

10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)/ Engineering & Others

	Sanctioned	Filled	Actual (including CAS & MPS)
Professors	1	1	1
Associate Professors	2	2	2
Assistant Professors	4	4	4

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

Name	Qualification	Designation	Specialization	No. of Years of Experience (Teaching)	No. of PhD/M.Phil students guided for last 4 years
N.Tejo Prakash	PhD	Professor	Metal Biotransformations	12 Years	10/0
A.S.Reddy	PhD	Associate Professor	Design and analysis of Wastewater Treatment Plants including Sewage Treatment Plants; Industrial Waste Management; Management Systems for Energy and Environment in industries	26 Years	2/0
K.S.Babu	M.Tech	Assistant Professor	Wastewater Treatment Engineering	19 Years	0/0
Anita Rajor	PhD	Assistant Professor	Environmental Microbiology	16 Years	5/0
Anoop Kumar	PhD	Assistant Professor	Chemical and Biochemical Engineering	10 Years	0/0
Amit Dhir	PhD	Assistant Professor	Air Quality Modelling & Assessment; EIA	15 Years	0/0
A.Venkatasubramanian	PhD	Assistant Professor	Solid Oxide Fuel Cells	01 Year	0/0

12. List of senior Visiting Fellows, adjunct faculty, emeritus professors
Adjunct Faculty hosting M.Tech students:
Dr. P.K.Bajpai, Distinguished Professor, Department of Chemical Engineering
Dr. Susheel Mittal, Senior Professor, School of Chemistry and Biochemistry
Dr. H.Bhunia, Associate Professor, Department of Chemical Engineering
Dr.Vijaykumar Bulsara, Assistant Professor, Department of Chem. Engineering
Dr. Vikas Sangal, Assistant Professor, Department of Chem. Engineering

13. Percentage of classes taken by temporary faculty – programme-wise information:
M.Tech Environmental Science and Technology: 15%
S.K.Mahla (AP-Contractual):
Environmental Hydraulics (3,1,2);
Conventional Energy Technologies (3,1,2)

14. Programme-wise Student Teacher Ratio :
M.Tech Environmental Science and Technology : 1:18

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

	Sanctioned	Filled
Technical Staff	2	2
Administrative Staff	2	1

15. Research thrust areas as recognized by major funding agencies
- River water quality monitoring and management;
- Metal bio-transformations;
- Advanced oxidation processes;
- Industrial environmental management;
- Ambient air quality;
- Bioremediation and bio-plastics;
- Fuel cell technology; and
- Biofuels

16. 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. **– (Last 5 years: 2009-2015)**

Ongoing Sponsored Projects

S.No	Project Title	Funding Agency	Year	Grant (in Lakhs)	PI
1	Applications of ionizing radiations in AOP based treatment of priority pollutants from aqueous streams	BRNS	2015-18	24.9	Amit Dhir
2	Neuroprotective properties of selenoergothioneine sourced from selenium-rich mushrooms against oxidative stress and nitrosative damage in neuronal cells	DBT	2012-14	18.9	N.Tejo Prakash
3	Studies on anti-inflammatory responses as function of bioavailable selenium from selenium-rich cereal grains	CSIR	2012-15	17.0	N.Tejo Prakash
4	Biofortification of selenium in edible mushrooms from Se-rich crop residues	DBT	2013-15	24.3	N.Tejo Prakash
5	Strain improvement of *Aspergillus* sp. for enhanced transesterification of waste cooking and non-edible oils using induced mutation by irradiation	BRNS	2011-14	21.2	N.Tejo Prakash (Co-PI)
6	Fungus mediated biodiesel generation from waste edible oils	CSIR	2012-15	16.0	N.Tejo Prakash (Co-PI)
7	Influence of bacteria on compressive strength and permeability of fly ash concrete	UGC	2012-14	7.57	Dr. Anita Rajor
8	Utilization of cement kiln dust in concrete after removal of alkalinity and metal toxicity with microbes	DST	2012-14	27.0	Dr. Anita Rajor (Co-PI)
9	Utilization of Fungal treated waste foundry sand concrete	CSIR	2011-14	20.0	Dr. Anita Rajor (Co-PI)
10	Feasibility study on the use of steel melting furnace slag/APCD dust as filler in the manufacture of fly ash bricks/Blocks	Industrial	2014-15	1.2	Dr. Amit Dhir

Completed Sponsored Projects

S.No	Project Title	Funding Agency	Year	Grant (in Lakhs)	PI
1	Satluj River Monitoring Program and STPs monitoring under the Satluj River Action Plan	National Directorate of River Conservation	(1st April, 2001 to 31st March, 2013)	12.5	Dr. A.S Reddy
2.	Studies on Selenium and its speciation in environmental and biological samples from seleniferous region of Punjab	BRNS	2008-12	15.2	N.Tejo Prakash
3	Selenium mobilization from waste agricultural residues	UGC-SAP	2007-12	13.0 (for thrust area II)	N.Tejo Prakash
4	Molecular mechanism of selenium reduction by microorganisms and its application to development of selenium recovery systems	DST-JSPS	2011-13	4.90	N.Tejo Prakash
5	Biodiesel preparation from low quality feed stock using immobilized biocatalyst	DRDO	2008-09	5.50	N.Tejo Prakash (Co-PI)
6	Study of arsenic and selenium using NAA	UGC-DAE	2007-10	1.4Lakhs +Beam Time)	N.Tejo Prakash (Co-PI)
7	A Development of biodegradable polymeric blends for packaging applications	AICTE	2008-11	16.00	Dr. Anita Rajor
8	Studies on Biodegradation of Plastics	Thapar Univ., Patiala	2008-09	1.00	Dr. Anita Rajor
9	Sonophotocatalytic treatment of wastewater From pharma Industry	UGC	2007-08	1.00	Anoop Verma
10	Sonophotocatalytic treatment of pesticides over TiO_2 photocatalyst using immersion well reactor	DRDO	2010-11	4.00	Anoop Verma
11	Fluidized bed catalytic reactor for the Degradation of Pharmaceutical active compounds (PAH) using batch reactor	IEI	2012-13	1.00	Anoop Verma
12	Demineralization studies of pesticides using Advanced Oxidation Processes	AICTE	2007-09	10.00	Anoop Verma (Co-PI)

17. Inter-institutional collaborative projects and associated grants received

a) National Collaboration

N.Tejo Prakash

DBT Project with Padmavathi Mahila University, Tirupati (2012): Rs. 18.0 Lakhs
DBT Project with Institute of Microbial Technology, Chandigarh (2013) Rs. 24.2 Lakhs
BRNS Project with BARC, Mumbai (2015) Rs. 24.5 Lakhs

Anoop Kumar

AICTE Project with UICT, Panjab Univ., Chandigarh (2009): Rs. 10 Lakhs

b) International Collaboration

N.Tejo Prakash

DST-JSPS Project with Ritsumeikan University, Japan (2012) Rs. 32 Lakhs
DBT-CREST Award with Pennsylvania State University, USA (2011) Rs. 10.5 Lakhs

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

20. Research facility / centre **NIL**

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

22. Publications: **List for last 5 years (2009-till date)**

S.No	Name	No. of Papers		Mono-graph	Book Chapters	Edited Books		Citation Index	SNIP	SJR	Impact Factor		h-index
		Nat	Intl.			With ISBN	With Intl. Database				Range	Average	
1	A.S Reddy	2	9	Nil	1			136	1.45	1.042	0.9-4.33	2.223	04
2	N.Tejo Prakash	6	28	-	-	-	-	211	0.95	0.6	0.5-4.0	1.54	08
3	Anita Rajor	4	16	-	03	02	-	117	1.604	0.844	0.05-4.8	1.77	06
4	Anoop Verma	3	12	-	-	-	-	237	0.766	0.437	0.5-3.5	1.04	06
5	Amit Dhir	9	7	-	-	-	-	21	0.79	0.6	0.5-3.0	1.50	03
6	K.S.Babu	1	-	-	-	-	-	-	-	-	-	-	-

LIST OF PUBLICATIONS :

2014

1. Bhatia P, Pandey S, Prakash R, Tejo Prakash N, 2014, Enhanced anti-oxidant activity as a function of selenium hyperaccumulation in Agaricus bisporus cultivated on Se-rich agri-residues. *Journal of Biologically Active Products from Nature,* 4: 354-364
2. Gupta S, Goyal R, Tejo Prakash N, 2014, Biosequestration of lead using *Bacillus* strains isolated from seleniferous soils and sediments of Punjab. *Environmental Science and Pollution Research,* 21: 10186-10193.
3. Bhatia P, Prakash R, Tejo Prakash N, 2014, Enhanced antioxidant properties as a function of selenium uptake by edible mushrooms cultivated on selenium-accumulated waste post-

harvest wheat and paddy residues, *International Journal of Recycling of Organic Waste in Agriculture,* 3: 127-132.

4. Bhatia P, Bansal C, Prakash R, Tejo Prakash N. 2014, Selenium uptake and associated anti-oxidant properties in *Pleurotus fossulatus* cultivated on wheat straw from seleniferous fields. *Acta Alimentaria,* 43: 280-287.
5. Gangwar AK, Tejo Prakash N, Ranjana Prakash, 2014, Applicability of microbial xylanases in paper pulp bleaching: A Review. *BioResources,* 9: 3733-3754
6. Verma A, Tejo Prakash N, Toor AP. 2014, Photocatalytic Degradation of Herbicide Isoproturon in TiO_2 Aqueous Suspensions: Study of Reaction Intermediates and Degradation Pathway. *Environmental Progress and Sustainable Energy,* 33: 402-409.
7. Verma A, Tejo Prakash N, Toor AP. 2014, An efficient TiO_2 coated immobilization system for degradation studies of herbicide isoproturon: Durability studies. *Chemosphere,* 109: 7-13
8. Kunal, Siddique R., Rajor A. 2014. Influence of bacterial treated cement kiln dust on the properties of concrete. Construction and Building Materials. 52. 42-51.
9. Verma A., Isha, Dixit D. 2014. Sonophotocatalytic treatment of pharmaceutical Industry Wastewater over TiO_2 photocatalyst using immersion well reactor. Desalination and Water Treatment. DOI: 10.1080/19443994.2013.822164.
10. **Verma**, A., Hura, A. K. and Dixit, D.,, Sequential photocatalytic and sono-photocatalytic degradation studies of Reactive Black 5 (RB5), Desalination and water treatment, 2014 (doi: 10.1080/19443994.2014.940390)
11. **Verma**, A., Kaur, M., Rajput, H., Potential use of foundry sand as heterogeneous catalyst in solar photo-Fenton degradation of herbicide Isoproturon, International Journal of Environmental research (Accepted)
12. **Verma**, A., Dixit, D., Toor, A.P. and Srivastava, J., Heterogeneous Photocatalytic Degradation of 2-Chloro-4-Nitrophenol using Slurry and Fixed Bed Reactor, Environmental progress and sustainable energy, 2014 (DOI 10.1002/ep.11997)
13. Sharma T, Rajor A and Toor AP (2014). Degradation of Imidacloprid in liquid by *Enterobacter* sp. strain ATA1 using co-metabolism. *Bioremediation Journal*, 18 (3): 227-235.
14. Kunal, Rafat Siddique and Anita Rajor (2014). Strength and Microstructure Analysis of Bacterial Treated Cement Kiln Dust Mortar. *Construction and Building Materials*, 63: 49-55. (July 2014)

2013

1. Arora A.S., Reddy A.S. 2013. Multivariate analysis for assessing the quality of stormwater from different Urban surfaces of the Patiala city, Punjab,India, Urban Water Journal. 10. 422-433.
2. Verma A., Tejo Prakash N., Toor A.P. 2013. Photocatalytic Degradation of Herbicide Isoproturon in TiO_2 Aqueous Suspensions: Study of Reaction Intermediates and Degradation Pathway. Environmental Progress and Sustainable Energy (DOI 10.1002/ep.11799)
3. Sharma A., Verma A., Luxami V., Melo J.S., D'Souza S.F.D., Tejo Prakash N., Prakash R. 2013. A New ^{1}H NMR based derivation for quantification of alkyl esters generated using biocatalysis. Energy and Fuels**.** 27. 2660-2664.
4. Gandhi U.H., Tejo Prakash N., Prabhu K.S**.** 2013. Selenoproteins and their role in oxidative stress and inflammation. Current Chemical Biology. 7. 65-73.

5. Aulakh S.S, Tejo Prakash N., Prakash R. 2013. Transesterification of triglycerides by dried biomass of Aspergillus sp. Journal of Oleo Science. 62. 297-303.
6. Bhatia P., Aureli F., D'Amato M., Prakash R., Cameotra S.S., Tejo Prakash N., Cubadda F. 2013. Selenium bioaccessibility and speciation in biofortified Pleurotus mushrooms grown on selenium-rich agricultural residues. Food Chemistry. 140. 225-230.
7. Bhatia P., Prakash R., Tejo Prakash N. 2013 Selenium uptake by edible oyster mushrooms (Pleurotus sp.) from selenium-hyperaccumulated agricultural residues. Journal of Nutritional Science and Vitaminology. 59. 69-72.
8. Kunal, Rajor A., Siddique R. 2013. Biological treatment of alkaline cement kiln dust by using alkali tolerant bacteria. Journal of Pure and Applied Microbiology. 7. 1933-1942.
9. Kaur G., Siddique R., Rajor A. 2013 Influence of Fungus on Properties of Concrete Made With Waste Foundry Sand. Journal of Materials in Civil Engineering. 25. 484-490.
10. Kaur G., Siddique R., Rajor A. 2013. Micro- Structural and Metal Leachate Analysis of Concrete Made With Fungal Treated Waste Foundry Sand. Construction and Building Materials. 38. 94-100.
11. Singh R., Ahlawat O.P., Rajor A. 2013. Potential of spent substrate of Pleurotus sajor-caju for Methyl violet 2B decolorization. Journal of Pure and Applied Microbiology. 7. 1099-1106.
12. Patel S.K., Rajor A., Jain B.P., Patel P. 2013. Performance Evaluation of Effluent Treatment Plant of Textile Wet Processing Industry: A Case Study of Narol Textile Cluster, Ahmedabad, Gujarat. International Journal of Engineering Science and Innovative Technology. 2. 290-296.
13. Rajor A., Kunal. 2013. Absorption of chromium and nickel from aqueous solution by bacteria isolated from electroplating unit effluent. Indian Journal of Environment Protection. 33. 213-221.
14. Gupta A., Dhir A. 2013. Estimation of Horizontal Pollution Potential by Calculating Impact Area for Patiala, Punjab Using Wind Data. International Journal of Innovative Research in Science, Engineering and Technology. 2. 2271-2279.
15. Verma A., Kaur H., Dixit D. 2013. Photocatalytic, sonolytic and sonophotocatalytic degradation of 4-chloro-2-nitro phenol. Archives of Environmental Protection. 39. 65-76.
16. Verma A., Sheorn M., Toor A.P. 2013. Titanium dioxide mediated photocatalytic degradation of malathion in aqueous phase. Indian Journal of Chemical Technology. 20. 46-51.
17. Verma A., Debnath A., Singh G. 2013. Degradation of Reactive Black 5 along with Dilution of RO Reject Water using Photocatalysis. Research Journal of chemistry and Environment. 17. 32-37.
18. Sandeep, S., Mahla, S.K, Bhath, G.S., 2013, Experimental studies on the utilization of oxygenated additive dibutyl mealate in CI engine, Mechanica Confab, 2, 1-10.
19. Abhishek Gupta, **Amit Dhir,** Estimation of Horizontal Pollution Potential by Calculating Impact Area for Patiala, Punjab Using Wind Data, International Journal of Innovative Research in Science, Engineering and Technology, 2(6), 2271-2279
20. Rahil Changotra, Abhishek Gupta, **Amit Dhir,** Assessment of the impacts of emissions from point source on ambient air quality using dispersion modeling technique, S & T Review, An international Journal of Science and Technology, 2(2), 47-53.

2012

1. Aureli F., Ouerdane L., Bierla K., Szpunar J., Tejo Prakash N., Cubadda F. 2012. Identification of selenosugars and other low-molecular weight selenium metabolites in high-selenium cereal crops. Metallomics. 4. 968-978.

2. Jaiswal S., Prakash R., Acharya R., Reddy A.V.R, Tejo Prakash N. 2012. Selenium content in seed, oil and oil cake of Se hyperaccumulated Brassica juncea (Indian Mustard) cultivated in seleniferous region of India. Food Chemistry. 134. 401-404.
3. Jaiswal S., Prakash R., Acharya R., Nathaniel T.N., Reddy A.V.R., Tejo Prakash N. 2012. Bioaccessibility of selenium from Se rich food grains of seleniferous region of Punjab, India as analyzed by Instrumental and Chemical NAA. CyTA Journal of Food. 10. 160-164.
4. Gupta S., Goyal R., Nirwan J., Cameotra S.S., Tejo Prakash N. 2012. Biosequestration, transformation and volatilization of mercury by Lysinibacillus fusiformis isolated from Industrial effluent. Journal of Microbiology and Biotechnology. 22. 684-689.
5. Singh M., Tejo Prakash N. 2012. Characterisation of phosphate solubilising bacteria in sandy loam soil under chickpea cropping system. Indian Journal of Microbiology. 52. 167-173.
6. Chahal N., Siddique R., Rajor A. 2012. Influence of Bacteria on the Compressive Strength, Water Absorption and Rapid Chloride Permeability of Concrete Incorporating Silica Fume. Construction and Building Materials. 37. 645-651.
7. Singh R., Ahlawat O.P., Rajor A. 2012. Identification of the potential of microbial combinations obtained from spent mushroom cultivation substrates for use in textile effluent decolorization. Bioresource Technology. 125. 217-225.
8. Kharub M., Rajor A., Mittal S.K. 2012. Fly-ash sewage sludge mixture as a barrier of heavy metal leaching. Research Journal of Chemistry and Environment. 16. 22-27.
9. Kharub M., Rajor A., Mittal S.K. 2012. Assessment of total coliform removal and leaching of metal ions from sewage sludge-fly ash mixturesat different pH and washing conditions. African Journal of Biotechnology. 11. 9612-9618.
10. Rajor A., Mehta R., Kunal. 2012. An overview on characterization, utilization and leachate analysis of biomedical waste incinerator ash. Journal of Environmental Management. 108. 36-41.
11. Kunal, Siddique R., Rajor A. 2012. Use of cement kiln dust in cement concrete and its leachate characteristics. Resources, Conservation and Recycling. 61. 59-68.
12. Kaur G., Siddique R., Rajor A. 2012. Properties of concrete containing fungal treated waste foundry sand. Construction and Building Materials. 29. 82-87.
13. Chahal N., Siddique R., Rajor A. 2012. Influence of bacteria on the compressive strength, water absorption and rapid chloride permeability of fly ash concrete. Construction and Building Materials. 28. 351-356.
14. Dhir A., Tejo Prakash N., Sud D. 2012. Coupling of solar assisted advanced oxidative and biological treatment for degradation of agro-residue based soda bleaching effluent. Environmental Science and Pollution Research. 19. 3906-3913.
15. Dhir A., Tejo Prakash N., Sud D. 2012. Comparative studies on TiO_2/ ZnO photocatalyzed degradation of 4-chlorocatechol and bleach mill effluents. Desalination and Water Treatment. 46. 196-204.
16. Dhir A., Ram C. 2012. Design of an anaerobic digester for wastewater treatment. International Journal of Advanced Research in Engineering and Applied Sciences. 1. 56-66.
17. Dhir A., Sharma S., Sud D., Ram C. 2012. Studies on decolourization and COD reduction of dye effluent using advanced oxidation processes. Elixir Chemical Engineering. 53. 11983-11987.
18. Dhir A., Sharma S., Chopra T. 2012. Development of EIA impact matrix (with & without control measures) for up-gradation of existing two-lane carriageway to four lane divided carriageway between km 0.0 to 50.700 km (section-Zirakpur to Patiala) of NH-64 with flexible and concrete pavements. Journal of Engineering Science and Management. 2. 151-155.

19. Verma A., Poonam, Dixit D. 2012. Titanium dioxide mediated photocatalytic degradation of chlorpyrifos in aqueous phase. International Journal of Environmental Sciences. 3. 743-755.
20. Sithta, A., Kumar, A., Mahla, S.K. Utilization of argemone oil biodiesel in commercial Di-Ci engine, International Journal on Emerging Technologies, 3: 19-24.
21. Mahla, S.K., Birdi, A. 2012, Performance and emission characteristics of different blends of linseed methyl ester on diesel engine, International Journal on Emerging Technologies 3: 55-59
22. Gomasta, S., Mahla, S.K. 2012, An experimental investigation of ethanol blended diesel fuel on engine performance and emission of a diesel engine, International Journal on Emerging Technologies 3: 74-79
23. Mahla, S.K., Kumar, S., Shergill, H., Kumar, A. 2012, Study the performance characteristics of acetylene gas in dual fuel engine with diethyl ether blends, International Journal on Emerging Technologies, 3: 80-83
24. Singh, S., Mahla, S.K. Utilization of ethanol and rice bran methyl ester in a single cylinder CI diesel Engine, International Journal of Emerging Technology and Advanced Engineering, 2: 147-152.
25. Singh, S., Mahla, S.K. Emerging scope for biodiesel for energy security and environmental protection, International Journal of Emerging Technology and Advanced Engineering, 2, 157-162
26. Mahla, S.K., Gomasta, S. Experimental investigation on compression ignition engine fuelled by biodiesel blended with diesel, Global Journal of Researches in Engineering, 12, 27-32
27. Singh, S., Walia, V., Mahla, S.K. Engine exhaust pressure control system, International Journal of Management, IT and Engineering, 2, 331-338.

2011

1. Bhatti M.S., Reddy A.S., Kalia R.K., Thukral A.K. 2011. Modeling and optimization of voltage and treatment time for electrocoagulation removal of hexavalent chromium. Desalination. 269. 157-162.
2. Bhatti M.S., Kapoor D., Kalia R.K., Reddy A.S., Thukral A.K. 2011. RSM and ANN modeling for electrocoagulation of copper from simulated wastewater: Multi objective optimization using generic algorithm approach. Desalination. 274. 74-80.
3. Singh G., Bhunia H., Rajor A., Chaudhary V. 2011. Thermal properties and degradation characteristics of polylactide, linear low density polyethylene, and their blends. Polymer Bulletin. 66. 939-953.
4. Chahal N., Rajor A., Siddique R. 2011. Calcium carbonate precipitation by different bacterial strains. African Journal of Biotechnology. 10. 8359-8372.
5. Dhir A., Tejo Prakash N., Sud D. 2011. Studies on coupled biological and photochemical treatment of soda pulp bleaching effluents from agro residue based pulp and paper mill. Journal of Chemical Technology and Biotechnology. 86. 1508-1513.
6. Bansal P., Dhir A., Tejo Prakash N., D Sud. 2011. Environmental remediation of wastewater containing azo dye with a heterostructured nano photocatalyst. Indian Journal of Chemistry. 50/A. 991-995.

2010

1. Singh M., Khanna S., Tejo Prakash N. 2010. Influence of cellulolytic bacteria augmentation on organic carbon and available phosphorus in sandy loam soil under cultivation. Journal of Agricultural Science. 2. 137-145.

2. Tejo Prakash N., Sharma N., Prakash R., Acharya R. 2010. Removal of selenium from Se enriched natural soils by a consortium of Bacillus isolates. Bulletin of Environmental Contamination and Toxicology. 84. 214-218.
3. Tejo Prakash N., Sharma N., Prakash R., Nathaniel N., Acharya R., Reddy A.V.R. 2010. Selenium fortification and pro/anti-oxidant responses in Allium cepa (onion plant) cultivated in Se supplemented soils. Experimental Agriculture. 46. 531-540.
4. Cubadda F., Aureli A., Ciardullo S., D'Amato M., Raggi A., Acharya R., Reddy A.V.R., Tejo Prakash N. 2010. Changes in selenium speciation associated with increasing tissue concentration of selenium in wheat grain. Journal of Agricultural and Food Chemistry. 58. 2295-2301.
5. Gupta S., Prakash R., Pearce C.I., Pattrick R.A.D., Hery M., Lloyd J.R., Tejo Prakash N. 2010. Selenium mobilization by Pseudomonas aeruginosa (SNT-SG1) isolated from seleniferous soils from India. Geomicrobiology Journal. 27. 35-42.
6. Mathur C., Prakash R., Ali A., Kaur J., Cameotra S.S., Tejo Prakash N. 2010. Emulsification and tranesterification of oil by a soil borne fungus, Syncephalastrum racemosum. Defence Science Journal. 60. 251-254
7. Siddique R., Kaur G., Rajor A. 2010. Waste foundry sand and its leachate characteristics. Resources, Conservation and Recycling. 54. 1027-1036.
8. Singh G., Bhunia H., Rajor A., Jana R.N., Chaudhary V. 2010. Mechanical properties and morphology of polylactide linear low density polyethylene and their blends. Journal of Applied Polymer Science. 118. 496-502.
9. Mahla, S.K., Das, L.M., Babu, M.K.G. Effect of EGR on performance and emission characteristics of natural gas fueled Diesel Engine, JJMIE 4, 523-530

2009

1. Bhatti M.S., Reddy A.S., Thukral A.K. 2009. Electrocoagulation removal of Cr(VI) from simulated wastewater using response surface methodology. Journal of Hazardous Material. 172. 839-846.
2. Tejo Prakash N., Sharma N., Prakash R., Raina K.K., Fellowes J., Pearce C.I., Lloyd J.R., Pattrick R.A.D. 2009. Aerobic microbial manufacture of nanoscale selenium: Exploiting nature's bionanomineralization potential. Biotechnology Letters. 31. 1857-1862.
3. Vidyalakshmi C., Tejo Prakash N. 2009. In-situ bioremediation of chlorpyrifos in cotton fields: Possible role of plant-microbe interactions. Journal of Pure and Applied Microbiology. 3. 543-550.
4. Singh M., Tejo Prakash N., Khanna S. 2009. Fingerprinting of cellulose degrading bacteria from agricultural soils. Journal of Pure and Applied Microbiology. 3. 143-150.
5. Sekhon K.K., Tejo Prakash N., Khanna S. 2009. Cloning, expression and genetic regulation of a biosurfactant gene for bioremediation of hydrophobic chemical compounds. Journal of Pure and Applied Microbiology. 3. 49-58.
6. Sharma N., Prakash R., Srivastava A., Sadana U.S., Acharya R., Tejo Prakash N., Reddy A.V.R. 2009. Profile of selenium in soil and crops in seleniferous area of Punjab, India by neutron activation analysis. Journal of Radioanalytical and Nuclear Chemistry. 281. 59-62.
7. Sekhon K.K., Tejo Prakash N., Khanna S. 2009. Cloning and expression of a biosurfactant gene from endosulfan degrading *Bacillus* sp. Biotechnology. 8, 235-241.
8. Rajor A., Singh R. 2009. Colour removal of distillery waste by *Saccharomyces* in combination with fungal strains. Asian journal of chemistry. 21, 7032-7040
9. Dubey S.K., Kumar A., Srivastava P. 2009. Solar photo-catalytic treatment of textile wastewater for biodegradability enhancement. International Journal of Environmental Engineering. 1, 152-164.

23. Details of patents and income generated : **N/A**

24. Areas of consultancy and income generated :

Name of the Faculty	Area of consultancy	Income Generated
Dr. A.S.Reddy	Design and analysis of Wastewater Treatment Plants including Sewage Treatment Plants Industrial Waste Management Management Systems for Energy and Environment in industries	28.0 Lakhs (in association with SAI Labs)
Dr. A.S.Reddy	Design and analysis of wastewater treatment plants (32 Units)	17.25 Lakhs
Dr. A.S.Reddy	Design and analysis of effluent treatment plants (4 Units)	5.50 Lakhs
Dr. Amit Dhir	EIA; Environmental Monitoring and Testing; Hydological studies	6.0 Lakhs
Mr. Sudhakara Babu& Dr. Anita Rajor	Water quality monitoring and survillence	6.0 Lakhs

25. Faculty selected nationally / internationally to visit other laboratories / institutions / industries in India and abroad
N.Tejo Prakash – DBT-CREST Fellow, Pennsylvania State University, USA
N.Tejo Prakash – JSPS Visiting Faculty, Ritsumeikan University, Japan
N.Tejo Prakash – Erasmus Visiting Faculty, University of Manchester, UK

26. Faculty serving in
a) National committees b) International committees c) Editorial Boards d) any other (please specify)
N.Tejo Prakash – Adhoc Reviewer for more than 15 peer-reviewed journals
Dr. Anita Rajor - Co-Editor - Research Journal of Chemistry and Environment (India)
Amit Dhir - Adhoc Reviewer for more than 5 peer-reviewed indexed journals
S.

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

S.No.	**Name of the Course**	**Duration**
Amit Dhir		
1.	Matlab for Chemical Engineers, Thapar Institute of Engineering & Technology University, Patiala	Three days (3-5 June, 2013
2.	AERMOD Air Dispersion Modeling, LaGa Systems, Hyderabad	Two days (8-9 July, 2013)
3.	Disaster Prevention and Mitigation, Thapar centre for Industrial Research & Development, Patiala.	Fifteen Days (28 May-8 June., 2010)
4.	Basics and Applications of Computational Fluid Dynamics, Department of Mechanical Engineering, Thapar Institute of Engineering & Technology University, Patiala.	Two weeks (10-23 July 2009)

Anoop Kumar		
1.	Instrumental method of analysis, Department of Analytical services, Thapar centre for Industrial Research & Development, Patiala.	Three days (4^{th} to 6^{th} Oct., 2010)
2.	Basics and Applications of Computational Fluid Dynamics, Department of Mechanical Engineering, Thapar Institute of Engineering & Technology University, Patiala.	Two weeks (10-23 July 2009)
3.	Recent Developments in Energy Conversion Technologies, Department of Mechanical Engineering, Thapar Institute of Engineering & Technology University, Patiala.	Two days (22-23 Mar. 2010)
S.K.Babu		
1.	AICTE Program on Environmental Health and Safety Management at IIT, Roorkee	5 Days (25-29 Jan. 2010)
2.	Indo-German Workshop on CHOP-C at IITM, Pune	3 Days (16-18 Jan. 2012)
3.	Environmental Awareness Campaign Program, Search Foundation, Noida	5 Days (26-30 Dec. 2013)

28. Student projects
    - percentage of students who have done in-house projects including inter-departmental projects **– 80%**
    - percentage of students doing projects in collaboration with other universities / industry / institute **– 20%**

List of Dissertations supervised inhouse and by other organizations (Last 3 Years)

S.No	Name of Student	Title of the Thesis	Single/Joint guidance
1.	Navdeep Kaur	Comparative studies on the photocatalytic	Amit Dhir
2.	Kawan Multani	Use of RHA based filters for the treatment of pulp & paper mill wastewater	Amit Dhir
3.	Rahil Changotra	Comparative studies of different air pollution modelling techniques from a point sources of thermal power plant	Amit Dhir
4.	Bikramjeet Singh	Performance assessment and design analysis of UASB based Sewage Treatment Plant	Dr. A.S Reddy
5.	Sneha	Performance monitoring and Evaluation of sewage treatment Plant	Dr. A.S Reddy
6.	Priyanka Saini	Pre-Treatment of Textile Industry Wastewater Using Ceramic Mambrance	Dr. A.S Reddy & Vijaya Kumar Bulasara
7.	Ankit Gandotra	Water Quality Studies of Eating Establishments of Patiala	Er. K.S Babu
8.	Megha Rana	Performance Evaluation of Wastewater of Different Industries	Er. K.S Babu
9.	Divya Dixit	Degradation of Amoxicillin Trihydrate (AMT) with suspended /immobilized TiO_2 catalyst and Parabolic Trough Collector	Anoop Verma
10.	Manpreet Kaur	Potential use of foundry sand as heterogeneous catalyst in solar photo-Fenton degradation of herbicide Isoproturon	Anoop Verma
11.	Himadari Rajput	Heterogeneous photo-Fenton degradation of dye RB5 using Fly ash and Foundry sand as iron source	Anoop Verma
12.	Sandeep Singh	Bioremediation of Artificially Lubricant Contaminated Soil with Manure	Anita Rajor

S.No	Name of Student	Title of the Thesis	Single/Joint guidance
13.	Nupur	Isolation and Characterization of urea producing microbes and their optimization for plant growth	Anita Rajor
14.	Rohini	Study and management of various Edaphic constraints to soil selenium ionic levels by bacteria (NTHRYS Laboratories , Hyderabad	Anita Rajor
15.	Arpita	Degradation and decolourisation studies of paper mill effluents by TiO_2 Photocatalysis	Anoop Verma
16.	Gurpreet Kaur	Degradation studies of herbicide isoproturon by using heterogeneous solar photo fenton process (using fl6y ash)	Anoop Verma
17.	Gurpreet Saggu	Treatment of pesticides by coupled fenton prossesses and biological process	Anoop Verma
18.	Shashnak	Degradation studies of Insecticide Imidacloprid using Fluidized Bed Photocatalytic Reactor	Anoop Verma
19.	Jayant	Fixed bed Catalysis approach for the degradation of 2-Chloro-4 Nitrophenol (Supported TiO_2)	Anoop Verma
20.	Amarpreet	Degradation of Reactive black dye using Sonophoto-Fenton treatment	Anoop Verma
21.	Varun	Sonophotocatalytic degradation of Monocrotophos using Immersion well reactor	Anoop Verma
22.	Parinita	Wastewater Treatment using Membrane Filtration	Anoop Verma & Dr Malini Balakrishnan
23.	Manisha	Advanced oxidative pretreatment process for enhance biodegradation of complex wastewater generated from pharmaceutical industry	Dr. R.A Pandey (NEERI NAGPUR)
24.	Sucuhi	Feasibility Studies on Recycling /Reuses of Wastewater from Automobile Industry	Pravin Manekar (NEERI NAGPUR)
25.	Harman	Titanium Dioxide mediated Sonophoticatalytic Degradation of pesticides using immersion well reactor	Anoop Verma
26.	Sumit Kumar Patel	Performance evaluation of effluent treatment facilities of textile cluster: Acase study of Narol Textile clustser, Ayhmedabad, Gujarat	Anita Rajor and Bharat P. Jain (Narol Cluster, Ahmedabad)
27.	Shelly Heera	Biological treatment of hazardous Bio-medical waste ash- A sustainable approach	Anita Rajor
28.	Satyender Chaudhry	A study of groundwater contamination by the leaching of fly ash in vicinity of Guru Gobind Singh thermal power plant , Ropar(Punjab)	Anita Rajor and S. Mittal
29.	Jasmine Kaur	Removal of fluoride from drinking water using activated carbon	Anita Rajor and H. Bhunia
30.	Bulbul Gupta	Isolation and Characterization of naphthalene degrading bacteria	Anita Rajor
31.	Abhinav Srivastava	Chromium removal from tannery industry waste water by fungus	Anita Rajor
32.	Monika Sharma	Effect of phosphate solubilising bacteria on plant growth	Anita Rajor

S.No	Name of Student	Title of the Thesis	Single/Joint guidance
33.	Pallavi Nayak	Biodegradation of modified olypropylene films	Anita Rajor and H. Bhunia
34.	Kirti Raj	Anaerobic treatment of MSW landfill leachate	Anita Rajor and S.Y Bodhke (NEERI)
35.	Sampurna Nand Singh	Establishing an Integrtaed management system (ISO:9001,ISO:14001,OHSAS18001	Somesh Rastogi (ECPL Ghaziabad)
36.	Nagesh V. Singh	Design and cost comparison of Extended aeration and SAFF for typical domest5ic wastewater	Anita Rajor
37.	Parveen Goyal	Linkages between Environmental protection and development including Ecosystem valuation and economic instruments in Environmental Management	Anita Rajor
38.	Megha Bedi	Stormwater Assessment Studies For Selected Urban and Rural sub-watersheds	A.S Reddy
39.	Gurprinder Kaur	Wastewater Management in Rural Human Settlements Using Village Pnds	A.S Reddy
40.	Arshdeep Kaur	Wastewater Management Studies for textile Processing Industry	A.S Reddy
41.	Harkishan Singh	Groundwater Recharge Systems for Stormwater Disposal	A.S Reddy
42.	kamna	Water Hyacinth Ponds As An Aternative to Polishing Ponds for the Treatment of Effluent from UASB	A.S Reddy
43.	Garvith Singh	Electroflocculation on textile dye wastewater	A.S Reddy and Sukrishpal Kaur
44.	Madhav Kumar	Waste management in electroplating industry	A.S Reddy and Nirmala Saraswat
45.	Priyanka Anand	Management of water hyacinth biomass along with industrial effluent through mushroom culturing & vermicomposting	A.S Reddy
46.	Nidhi Tyagi	Pilot scale study of pressure filtration system for the evaluation of filtralite media	A.S.Reddy
47.	Amita Jain	Design of sewerage system for rural human settlement: a case study	A.S.Reddy
48.	Tarundeep Gill	Performance monitoring and evaluation of sewage treatment plants based on UASB-facultative ponds	A.S.Reddy
49.	Sachin Kumar	Performance evaluation of oxidation ponds based sewage treatment plants	A.S Reddy
50.	Pallavi Nayak	Biodegradation of modified polypropylene films	Anita Rajor and H.Bhunia
51.	Kirti Raj	Anaerobic treatment of MSW landfill leachate	Anita Rajor and S.Y.Bodhke (NEERI)
52.	Sampurna Nand Singh	Establishing an Integrtaed management system (ISO:9001, ISO:14001 , OHSAS 18001) within typical manufacturing Industry	Somesh Rastogi (ECPL Ghaziabad)
53.	Nagesh V. Singh	Design and cost comparison of Extended aeration and SAFF for typical domestic waste water	Anita Rajor
54.	Arti Choudhary	Source apportionment or aerosol in Delhi using UNMIX receptor Model	Gazala Habib (IIT-D) and K.S Babu

S.No	Name of Student	Title of the Thesis	Single/Joint guidance
55.	Raginee	Human health risk assessment through treated effluent used in public park irrigation	A. K Mittal (IIT-D) and K.S Babu
56.	Ravinder Kaur	As study on performance evaluation of domestic water purifiers	K.S.Babu
57.	Apurva Goel	Bioremediation of nitroaromatic compounds	Mary Celine (DRDO) and K.S Babu
58.	Neha Sharma	Combined effect of ultrasonic,UV light and silver nanoparticles on wastewater	J. Behari (JNU, Delhi and K.S Babu
59.	Avinash Kumar	Correlation study among water quality parameters of some sources	K.S Babu
60.	Akanksha Palak	Baseline study of the lalitkpur generation corporation during construction stage	R. Tyagi (DGM, lalitpur Ind) and K. S. Babu
61.	Karamvir Rana	Design modification and comparative study of different biomass cook stoves	S .K Tyagi (RET, Jallandhar) and K.S Babu
62.	Rajneesh Kumar	Process optimization for biodiesel production for Tung oil and its emission characteristics	K. Kundu (CMERI) and K.S Babu
63.	Ramanjot Kaur Sidhu	Studies on the solar assisted advanced oxidative treatment of procion Blue Dye	Amit Dhir
64.	Abhishek Tyagi	Studies on carbonaceous aerosol and water soluble ionic species emitted from residential biomass burning of Andhra Pradesh, India	Amit Dhir and T.K Mandal , NPL
65.	Gaurav Pandey	Chemical characterization of Aerosols emitted from household biomass burning of Madhya Pradesh, India	Amit Dhir and S.K Sharma, NPL
66.	Abhishek Gupta	Assessment of the Ambient air quality at the Integrated Industrial Estate _ Mandi Gobindgarh through the air quality index (AQI)	Amit Dhir
67.	Priyanka Singh	Photocatalytic degradation of biorecalcitrant cmpounds	Amit Dhir
68.	Gunsagardeep Singh	Process designing of Sewaged treatment plant National Highway Project in India	Amit Dhir
69.	Harpuneet	Studies on parametric optimization of pentachlorophenol using box-behnken design	Amit Dhir
70.	Lippi Chanduka	Effect of Crop Residue Burning Emission on Ambient Air Quality of Industrial Estate- Mandi Gobindgarh	Amit Dhir
71.	Madhvi Rana	Use of Air Dispersion Modelling (AERMOD) for the assessment of air quality of an industrial area	Amit Dhir
72.	Ranu Pachauri	Preparation of filters for water purification using rice husk ash	Amit Dhir
73.	Summit Patel	Performance evaluation of effluent treatment facilities of textile cluster: A case study of Narol Textile cluster, Ahmedabad, Gujarat	Anita Rajor
74.	Shally Heera	Biological treatment of hazardous Bio-medical waste ash – A sustainable approach	Anita Rajor
75.	Satinder Singh	A study of groundwater contamination by the leaching of fly ash in vicinity of Guru Gobind Singh thermal power plant, Ropar (Punjab)	Anita Rajor

S.No	Name of Student	Title of the Thesis	Single/Joint guidance
76.	Jasmine Kaur	Removal of fluoride from drinking water using activated carbon	Anita Rajor
77.	Bulbul	Isolation and characterization of naphthalene degrading bacteria	Anita Rajor
78.	Bhuvnesh Verma	Neutralization of alkaline waste water from pulp and paper industry by alkaliphiles	Anita Rajor
79.	Abhinav Srivastava	Chromium removal from tannery industry waste water by fungus	Anita Rajor
80.	Monika Sharma	Effect of phosphate solubilizing bacteria on plant growth	Anita Rajor

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

- Faculty

N.Tejo Prakash	
2014	Session Chair at International Scientific Conference on Environmental Research, Lumbini, Nepal
2011	Session Chair at International Conference-TEMA14, Enshi, China
2011	DBT -CREST Award for research work at Pennsylvania State University, USA
2009	IUPAC Thermo-Scientific Award for best concept presentation at International Conference-TEF3, Rome, Italy
Amit	
2012	NABET Approved Consultant in the area of Air Quality
Anoop Kumar	
2011	"Shikhsa Rattan Puraskar" 2012 by India International friendship society at New Delhi on 29th May, 2012.
2010	Young Engineer award 2009 in the field of Environmental Engg presented by Institution of Engineers of India, Orissa state centre in Jan., 2010.

- Doctoral / post doctoral fellows
  Kunal (Doctoral Student)

- Students NIL

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

- Training Program for Laboratory Analysts
  Dept. of water supply and sanitation, Govt.of Punjab, 2010: Rs.0.75 lakhs:
- National Environmental Awareness Campaign (NEAC),
  Punjab State Council for Science and Technology,Chandigarh, 2013: Rs.0.15 lakhs
- Two week Training Programme on Fermentation Technology, Thapar Institute of Engineering & Technology University, 2010: 1.00 Lakh
- Four week Training Programme on Microbial and Fermentation Technology, Thapar Institute of Engineering & Technology University, 2010: 1.60 Lakhs
- First National Conference on Advanced Oxidation Processes, 2013
  TEQIP and various govt. agencies : Rs. 8-9 Lakhs
  (Outstanding Participants: Dr. S.Adhikari, BARC; Dr. I.M.Mishra, IIT-Roorkee; Dr. S. Kansal, PU; Dr. Toor, PU; Dr. (Mrs.) V.Singh, PU; amongst others)

31. Code of ethics for research followed by the departments

CODE OF ETHICS FOR RESEARCH

- The school gives high priority to research as one of its most important contributions to the society.
- The faculty and the students of the school strive for the highest standards of excellence and morality in any research activities.
- The endeavour to publish in reputed journals, as such the ethical norms followed in these journals are fully complied with and efforts are made to teach research students to create awareness of copyright and Plagiarism.
- The University has ethical committee and approval is required for conducting experiments/ tests on human beings.
- Two research papers in SCI Journals before submission of PhD
- No weightage to papers published in paid SCI journal
- Paper has to be properly reviewed
- Anti-plagrisim software certificate or clearance is required before submitting the thesis of M.E./MTECH / Ph.D.

32. Student profile programme-wise* (Academic section Yr wise):

Name of the Programme	Year	Applications received*	Selected		Pass Percentage	
M.Tech Environmental Science and Technology			Male	Female	Male	Female
	2009	1279	3	11	21.4	78.5
	2010	1960	13	11	54.2	45.8
	2011	2274	11	17	39.3	60.7
	2012	2610	8	15	Ongoing	
	2013	2312	3	11	Ongoing	

*Applications received for M.Tech/ME programmes across the institution

33. Diversity of students*

Name of the programme	% of students from same University	% of students from other Universities within state	% of students from Universities outside state	% of students from abroad
M.Tech Environmental Science and Technology	10	30	60	Nil

*Average over 5 years

34. How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.
Selection to M.Tech programme is through GATE and Institute level Competitive Entrance Examination

35. Student progression

Student Progression	**Percentage against enrolled**
UG to PG	Not applicable
PG to M.Phil	Not applicable
PG to PhD	8-10%
PhD to Post-doctoral	Not applicable
Employed • Campus selection • Off-campus recruitment	 40% 50%
Entrepreneurs	1-2%

34. Diversity of staff

Percentage of faculty

- who are graduates (PG) from the same university – 1/7
- Who are graduates (PG) from other universities within the State – 1/7
- Who are from universities from other States – 5/7
- Who are from universities outside the country - Nil

Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period: **Three (PhD)**

37. Present details of departmental infrastructural facilities with regard to

a) Library : Library facility of the University is centralized.

b) Internet facilities for staff and students : The faculty and the students have access to the internet facility coordinated through Centre for Information Technology and Management.

c) Total number of class rooms :

- Institute has sufficient class rooms for conducting lectures and tutorials as a central facility
- SEE has a seminar hall shared with Department of Biotechnology to conduct workshops, seminars and guest lectures.
- The classrooms centralised at university level, however 4 classrooms allocated the department for conduct of postgraduate classes.

d) Class rooms with ICT facility : All class rooms are connected by WiFi facility.

e) Students' laboratories & Research laboratories

Laboratory description	Exclusive use / shared	Infrastructural Facilities
Env. Science lab 1	Exclusive	HACH spectrometer, florescence spectrometer, HPLC, Microwave Digestion system, cold room, BOD incubators, ovens, temperature controlled shakers, refrigerated centrifuges, microscopes (research), weather monitoring station, high volume and stack samplers, flue gas analyzer, noise meter, multi-parameter analyzer for various water related parameters
Env. Science lab 2	Exclusive	
Instrumentation lab/ Air Lab	Exclusive	
Research lab	Shared with DBT	
Bio-informatics lab	Shared with DBT	
Microbiology lab	Shared with DBT	

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

a) from the host institution/university : Faculty-wise

Dr. A.S Reddy

1. Siddharth Sharma
2. Amarpreet Singh Arora
3. Puneet Pal Singh (Part time)
4. Manwinder Kaur (Co-Supervisor)
5. Harpreet Singh
6. Nirmal (Part time)

Dr. N.Tejo Prakash:

1. Mr.Avdesh Gangwar;
2. Mr. Sumit Jaiswal;
3. Mr. Anirudh Sharma;
4. Ms. Noorpreet Inder Kaur Dhanjal.

Dr. Anita Rajor:

1. Ms. Teena Sharma
2. Mr. Sandeep Garg –Part-Time
3. Mr. Rachan Karmarkar
4. Ms. Priyanka Goyal

Dr. Amit Dhir

1. Ms. Vibhu Bhatia
2. Mr. Abhishek Gupta

b) from other institutions/universities : Nil

40. Number of post graduate students getting financial assistance from the university*.
2012: 02
2013: 14
(*After formation of SEE)

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

1. Discussions in the meetings of planning and monitoring board
2. Industry-University Interaction
3. Feedback / Suggestions from faculty
4. Visits of faculty to industry
5. Feedback from alumni and students
6. Scheme of courses/curriculum prevalent in other universitys/universities of National & International repute
7. Rules & regulations of governing, funding, accreditation and monitoring bodies for initiating new programmes as per the national regulations
8. National & International trends in education, technology & Industry in the area of the proposed programme(s)

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?

Student Reaction Survey is completed for every course in each semester to get a formal feedback from students for the courses offered in a semester and provide objective information to the faculty for self-appraisal, self-improvement & development. Formal student feedback is obtained online through semester-by-semester mandatory course evaluation using course reaction survey form and also through discussions with individual students as well as student representatives on the Student Consultative Committee (SCC) and also through meetings with student societies (SOMIE, REC etc). The student reaction survey results are made available to the individual faculty member for his feedback. The survey is completed online ensuring that the student is able to give an honest feedback without fear. At no point during this survey, the student details are known.

Rating of faculty on course, instruction, tutorial, practical & misc. items is reported in descending order of instructions and feedback is sent to individual faculty member for improvement. Students are also encouraged to give informal feedback during instruction process.

Feedback is taken by using a method SRS (Student Reaction Survey), the schedule of the SRS is issued by Dean of Academic Affairs (DoAA) in each semester. The circular and detail of all the SRS schedules is attached as given below.

b. Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?
The feedback provided by the students for each course and for each instructor is sent to the concerned instructors and a detailed report is made available to the Department Head (for the faculty of that Department), Dean Academic Affairs and Director. The

primary purpose of this feedback is self improvement of the instructors. However, if a faculty is rated least than 50%, he is formally counseled by the Dean and the Director in order to improve his performance. The HOD has the feedback results for all faculties in his domain and for all the courses. The feedback is used constructively for improvement **purposes only.**

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

Alumni of the Thapar Institute of Engineering & Technology University graduated in M.Tech. Environmental Science and Technology are expected to fill a feedback from and indicate their perceived level of achievement of the Program Educational Objectives (PEOs) and attainment of the Program Outcomes.

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

- 2012-14 Batch
  Divya Dixit, Assistant Professor, Marwari Group of Institutions, Ahmadabad.
  Bikramjit Singh, Assistant Professor, Marwari Group of Institutions, Ahmadabad

- 2010-12 Batch:
  A. Srivastava, Executive Officer, Grassroot Research and Creations, Noida
  Abhishek Gupta, Assistant Professor, Marwadi Education Foundation Group, Rajkot
  Varun Aggarwal,Assistant Professor, Marwadi Education Foundation Group, Rajkot
  Shuchi Sharma, Assistant Professor, Marwadi Education Foundation Group, Rajkot
  Gunsagardeep Singh, Executive Officer, Oberoi Constructions Corporation, Muksar
  Geetanjali Tomar, IBM India, Noida
  Jayant Srivastava, BHG Consultant, Fazilka

- 2008-10 Batch:
  Amita Jain, Executive Officer, Grassroots and Creation India Ltd., Noida.
  Poonam Yadav, Executive Officer, Global Standards India., Lucknow
  Navleen Kaur, Senior Executive, Emergent Ventures Pvt. Ltd., Gurgaon
  Pradeep Kumar, Senior Executive, Prakriti Consultants and Services, Lucknow.
  Nidhi Tyagi, Assitant Professor, Indraprastha Engineering College, UP
  Tarundeep Gill, Assistant Professor, MM University, Ambala

- 2008-09 Batch:
  Nageshvikram Singh, Entrepreneur, Ecopancia, Chandigarh
  Prathibha Sangwan, Assistant Professor, GITM University, Gurgaon
  Manmohan Singh, Assistant Professor, Bharat Group of Institutions, Mansa
  Hemant Kumar, EHS Officer, Trident Group, Punjab
  Sampurnand Singh, EHS Officer, Jubliant Group, UP
  Vibhu Tripathi, EHS Officer, Bajaj Group, Haryana

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

- Some of the organizations which have hosted our M.Tech Students through which the students had industrial/research experience
  - National Environmental Engg. Research Institute, Nagpur
  - Tata Energy Research Institute, Delhi
  - Indian Institute of Technology, Delhi
  - SSS National Institute of Renewable Energy, Kapurthala
  - Thermal Power Plant, Jhansi
  - National Physical Laboratory, New Delhi
  - GGS Thermal Power Plant, Ropar
  - Gujarat Cleaner Production Centre, Gandhinagar

- Industry experts closely interact with the faculty and students during the design the curriculum for the courses. Their inputs are incorporated to make course contents in tune with the industry requirements. Some of the industry experts involved in development of course curricula are:
  - R.N.Sahu, Sriram Fertilizers and Chemicals, Kota, Rajasthan
  - J.M.Aggarwal, Pioneer Agrotech, Jalandhar, Punjab
  - Subodh Gupta, Ind-Swift Laboratories, Derabassi, Punjab
  - Vishal Duggal, Alliance Industries, Patiala, Punjab
  - Dr. M.R.Nouni, Scientist F, MNRE, Delhi
  - Er. M.P.Singh, Joint Director, PEDA, Chandigarh

- **Expert lectures**

Date	**Name of the Eminent Guest**	**Affiliation of The Guest**	**Theme of the Lecture**
March 2012	Prof. Hisaaki Mihara	Associate Professor, Ritsumeikan University, Japan	Selenium biotransformations by bacteria and their use in selenium recovery systems
	Dr. Shegaki Saito	JSPS Scientist, Ritsumeikan University, Japan	Selenium reduction and enzymatic activity associated with Se nanoparticle generation
Nov. 2012	Prof. Anatoly V. Skalny	Director, UNESCO Centre for Trace Elements, Lyon France and Professor, Elementology Division, Orenburg University, Russia	Bioelementology and Elemental Mapping of Human Population

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

- Class rooms are equipped with facilities like black board/ whiteboards in addition to facility of multimedia presentations. The faculty members would use any of the facilities based on the course/content of teaching.

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

Course outcomes are evaluated through obtaining feedback from the students registered for the course. The feedback is obtained in the format given below. Each of the course outcomes is evaluated on a 1 to 5 scale, where 1 refers to very low level of achievement, 2 to low level of achievement, 3 to moderate level of achievement, 4 to high level of achievement and 5 to very high level of achievement. In case of credit seminar, minor project and dissertation/thesis, the scoring is obtained from the evaluators (including the supervisor/guide) of the credit seminar/minor project/dissertation.

- By analyzing the results of program outcome assessment in terms of direct and indirect assessments, necessary actions are recommended to improve the program curriculum.
- After each semester, faculty analyzed and evaluated the collected data from each course and from all other sources (surveys).
- The Programme coordinator discusses the results with faculty to identify the need for improvement. Prepare an action plan accordingly.
- Once the action has been completed, data for that performance indicator should again be collected, analyzed, and evaluated by the program assessment committee to see the performance.
- This process continues until the performance improve to the target value
- The results are discussed with Department Academic Affairs Committee
- The same procedure is followed for alumni surveys, employer surveys, rubrics etc.

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

The M.Tech students are involved in organizing professional engineering/technical events and contribute to societal programmes through various societies. Some of the events and societies are as follows:

- Aranya
- Environmental Convergence
- International Forum for Leadership and Sustainability
- Paryavaran Welfare Society
- Pratigya Society

48. Give details of "beyond syllabus scholarly activities" of the department.

The M.Tech students participate in national and international conferences to present the work carried out as a part of their Master's dissertation work. Some of the presentations by the students are listed below:

S. No.	Name of Student	Roll number	Publications with Title	Conference name/ year
1.	Amanjit Singh	601301003	Degradation of fungicide Carbendazium with immobilized catalyst	Recent advances in Chemical & Environmental Sciences (RACES-13) held at M. M. Modi College, Patiala, 31, Jan. 2015
2.	Palak Bansal	601301008	Degradation studies of antibiotic Cephalexin using slurry and fixed-bed photocatalysis	Recent advances in Chemical & Environmental Sciences (RACES-13) held at M. M. Modi College, Patiala, 31, Jan. 2015
3.	Kashish Aggarwal	601301006	Solar photo-Fenton degradation studies of fungicide carbendazium using foundry sand as iron source	Recent advances in Chemical & Environmental Sciences (RACES-13) held at M. M. Modi College, Patiala, 31, Jan. 2015

S. No.	Name of Student	Roll number	Publications with Title	Conference name/ year
4.	Ipshita	601301004	Bioremediation of polyaromatic aromatic hydrocarbon contaminated soil using manure. National Seminar on Sustainable Renewable Energy Generation	Current Scenario on March 21, 2015 by Energy Research Centre, Panjab University, Chandigarh, pp. 20
5.	Ipshita	601301004	Comparative studies on bacterial and fungal degradation of polycyclic aromatic hydrocarbons in soil – An overview	Recent advances in Chemical & Environmental Sciences (RACES-13) held at M. M. Modi College, Patiala, 31, Jan. 2015
6.	Upasana	601301014	Monitoring of particulate matter at greater Mohali and its associated health impacts.	National seminar on Environmental Mangaement, Sustainable Development and Human Health under Purse Grant-II organized by Dr. S. S Bhatnagar University Institute of Chemical Engineering & Technology Panjab University, Chandigarh held on 25th March,2013
7.	Shivang	601301012	Use of steel melting furnance slag dust as filler in manufacturing of fly ash bricks	National seminar on Environmental Mangaement, Sustainable Development and Human Health under Purse Grant-II organized by Dr. S. S Bhatnagar University Insititute of Chemical Engineering & Technology Panjab University, Chandigarh held on 25th March,2013
8.	Sandeep Singh	601201019	Bioremediation of Oil Contaminated Soil using Agriculture Compost	Third International Conference on Recycling and Reuse of Materials (ICRM 2014) by IIUCNN, MG University, Kottayam, Kerala and Wroclaw University of Technology, Poland at Kottyam (Kerala) India, 11-13 April 2014. pp. 68 (Abstract); Full Paper in CD ROM
9.	Priyanka Saini	601201017	Recycling of Textile Dyebath Wastewater using Membrane processes	3rd International Conference on Recycling and Reuse of Materials, IIUCNN, mahatama gandhi university, kottayam , Kerala, 11 – 13 April 2014.

S. No.	Name of Student	Roll number	Publications with Title	Conference name/ year
10.	Priyanka Saini	601201017	Pre-treatment of textile industry wastewater using ceramic membranes	CHEMCON 2014, 67TH Annual Session of Indian institute of Chemical Engineers,SSBUICET, punjab university, Chandigarh, 27- 30 December 2014.
11.	Shelly Heera	601101023	Biological Treatment of Hazardous Bio-medical Waste Ash – A Sustainable Approach	National Seminar on Green Technology for Sustainable Environmental Management at Doon University, Dehradun, India, 22-23 March 2013. pp. 46.
12.	Shelly Heera	601101023	Bacterial treatment and metal Characterization of Biomedical waste ash.	J. of waste management 2014 Doi org/10.1155/2014/956316
13.	Sumit Patel	601101026	Performance evaluation of effluent treatment plant of textile wet processing industry: A case Study of Narol textile cluster, Ahmadabad, Gujarat	International J. Engineering Science, innovation Technology,2013.4:290-296
14.	Shashank Srivastava	601101025	Fixed bed catalysis for degradation of isoproturon using cement pebbles	Recent advances in Chemical & Environmental Sciences (RACES-13) held at M. M. Modi College, Patiala, 31, Jan. 2013.
15.	Divya Dixit	601201006	Sonophotocatalytic degradation of Carbendazim in immersion well reactor using TiO_2	Recent advances in Chemical & Environmental Sciences (RACES-13) held at M. M. Modi College, Patiala, 31, Jan. 2013.
16.	Arpita and Gurpreet Singh	601101001 & 601101006	Degradation of RB5 along with the dilution of treated RO reject water using photocatalysis	Recent advances in Chemical & Environmental Sciences (RACES-13) held at M. M. Modi College, Patiala, 31, Jan. 2013.
17.	Pratibha		Sonophotocatalytic degradation of Alizarin Red Dye	Recent advances in Chemical & Environmental Sciences (RACES-13) held at M. M. Modi College, Patiala, 31, Jan. 2013.
18.	Arpita Debnath,	601101001	Treatment of paper mill effluent by photocatalytic oxidation,	Recent advances in Renewable Energy & Environmental Sciences (NCRAREES-13) held at Shoolini University, Solan (H.P.), 8-9th June, 2013.
19.	Gurpreet S. Saggu	601101006	Treatment of textile wastewater by coupled fenton and biological processes,	Recent advances in Renewable Energy & Environmental Sciences (NCRAREES-13) held at Shoolini University, Solan (H.P.), 8-9th June, 2013
20.	Gurpreet Kaur	601101005	Utilization of Fly-ash (FA) for the treatment of dyes using AOP	Recent advances in Renewable Energy & Environmental Sciences (NCRAREES-13) held at Shoolini University, Solan (H.P.), 8-9th June, 2013

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21.	Ranu	601101022	Use of rice husk ash in making of filters for water purification.	Green Technologies for Sustainable Environmental Management, 2013.
22.	Lippi	601101014	Effects of Open Rice Straw Burning Emissions on Air Quality in an Industrial Area - Mandi-Gobindgarh	Green Technologies for Sustainable Environmental Management, 2013.
23.	Harpuneet kaur	601101030	TiO_2 mediated photocatalytic degradation of pentachlorophenol.	National Conference on Preservation of Environment-Challenge before humanity, GGS World Univ. Fatehgarh Sahib, 2013
24.	Priyanka Singh	601001024	Optimization of process parameters in the photocatalytic degradation of 4,5-dichlorocatechol	Punjab Science Congress, at Guru Nanak Dev University, Amritsar, 2012.
25.	Madhavi Rana	601101016	Application of modeling software (Aermode) on air quality modeling	International conference on emerging trends in physics for environment monitoring and management,Punjabi University, Patiala 2012,
26.	Priyanka Singh	601001024	ZnO/TiO_2 Mediated Photocatalytic Degradation of Acrylonitrile in Aqueous Solution	Adavnced Oxidation Processes (AOP 2012), held at Kottayam, **Kerala** on October 5-8, 2012.
27.	Ashish Sharma	601001006	Development of green roads rating system for more environmentally friendly roads for a better transportation future	International conference on "Role of green technologies for substantial development " (RGSTD- 2012).
28.	Tarundeep Gill	600801013	Performance and design analysis of UASB based sewage treatment plants	2nd International conference on Environmental Management, JNTU, Hyderabad, 2012
29.	Varun Agarwal	601001030	Sonophotocatalytic Degradation of Carbendazim in Aqueous TiO_2 Suspensions	Adavnced Oxidation Processes (AOP 2012), held at Kottayam, **Kerala** on October 5-8, 2012.
30.	Jayant Srivatava	601001012	Fixed Bed photocatalysis for degradation of 2-Chloro-4-Nitrophenol using UV irradiations	Adavnced Oxidation Processes (AOP 2012), held at Kottayam, **Kerala** on October 5-8, 2012.
31.	Amarpreet Kaur	601001003	Degradation of Reactive Black 5 Using Sono Photo Fenton	Adavnced Oxidation Processes (AOP 2012), held at Kottayam, **Kerala** on October 5-8, 2012.
32.	Navleen Kaur	600801004	Biodegradability assessment of linear low density polyethylene.	National Conference on Chemical Engineering: Opportunities and Challenges, SLIET, Longowal, Disst. Sangrur. March 5 & 6, 2010.

S. No.	Name of Student	Roll number	Publications with Title	Conference name/ year
33.	Tarandeep Kaur	600801012	Characterization and treatability studies of grey water on domestic activities.	International Conference on Environmental Challenges at KMV, Jalandhar (Punjab) on October 15-16, 2010, pp 50
34.	Tarandeep Kaur	600801012	A Short Review- Ecological Sanitation	International Conference on Environmental Challenges at KMV, Jalandhar (Punjab) on October 15-16, 2010, pp 66

49. State whether the programme/ department is accredited/ graded by other agencies? If yes, give details.
The Program has been submitted for Accrediation by NBA

50. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.
- Developed Advanced Oxidation Processes based integrated treatment protocols for degradation of recalcitrant chemicals in industrial effluents
- Outlined the novel species of bioavailable selenium moieties in various selenium rich food matrices
- Development of protocols for generation of biodiesel from non-edible oils
- Scale-up of biogas generation from STP sludge

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

Strengths:
- New school with a platform open to diversify in emerging areas
- Faculty competent to teach and practice environmental science, technology and management
- Faculty competent to explore new and renewable energy technologies
- Strong base of consultancy and research
- Active role in state-of-art Centre for Excellence in Environment and Energy

Weaknesses:
- Lack of space and manpower to expand in the envisionedthrust areas of teaching and research
- In-adequate resources for recruitment, retentionand marketing – all that is needed to recruit and retain students
- Lack of strong alumni base
- Lack of Industry-Institute interaction
- Cost-intensive programs at post-graduate level

Opportunities:
- Potential to develop and deliver interdisciplinary and integrated programs in collaboration with other departments/schools
- Partnerships with local and regional employers so that our students are more appealing to them
- Development of entrepreneurial opportunities in the area of environmental design, services and consultancy

- Formulation of custom designed academic programs in consultation with industry
- Extension services involving expertise of faculty of the School to industry and academia

Challenges:

- Recruitment and retention of students through attractive academic programmes
- Initiation of short-term and long-term training programmes to strengthen existing core-curricula
- Developing academic and technical skills of students in terms of industry preparedness
- Orienting faculty towards specialized industrial research and development
- Assurance of placements to enrolled students

52. Future plans of the department.

Vision

To be recognized as the school of excellence in higher education, research and innovation in the areas of energy, environment and safety, and to remain sensitive and responsive to the local, regional and global concerns of the society.

Mission

1. To provide post-graduate education and research in the areas of energy, environment and safety and supporting both UG and PG educational programs across the university.
2. To provide extension education and training, and technical services to the society in the areas of energy, environment and safety.
3. To create, develop and disseminate new knowledge in the energy, environment and safety areas.
4. To provide state-of-art infrastructure and professional environment to both faculty and students and facilitate quality education and research and production of globally competent graduates in the area of energy, environment and safety.
5. To partner with industry, non-governmental organizations and government agencies in the education, research and development endeavours in the energy, environment and safety areas.
6. To remain sensitive and responsive to the changing energy and environment scenarios and to be dynamic, innovative and flexible in devising and implementing both academic and research programs.