

# The Center for Industry Institution Partnership Program (CIIPP)

A lot of innovative and Industry oriented research and knowledge can be contributed by the ignited minds of young researchers and faculties with the world class infrastructure getting developed in most of the reputed universities and institutes as a centre of higher learning. However, it needs an adequate atmosphere, supportive procedures, work friendly rules and proper executive frame work. This centre (CIIPP) has been established by our visionary Vice-Chancellor Prof. R.C. Sobti to inculcate and develop such competitive, excellent and globally acceptable research outputs from the campus of this central university involving the excellent human resource and infrastructure base of university academicians, Industry representatives and reputed experts at the one forum for the outcome of common interest.

Efforts towards establishing a state of art in industry university partnership is being carried out by CIIPP and in its several departments and centres of the university. Various research projects have been initiated in collaboration with the prominent national funding agencies. Besides this industrial support has also been offered by some renowned industries.

Currently about 65 research projects are ongoing in the various departments and centres of the university.

## Advisory Committee

### Chairman

Prof. R. C. Sobti, Vice Chancellor, BBAU, Lucknow

### Members

Dr P. K. Seth, CEO, Biotech Park, Lucknow

Prof. S.K. Sopory, Vice-Chancellor, Jawaharlal Nehru University, New Delhi

Dr. U.S. Rawat, Vice-Chancellor, SDS Uttarakhand University, Badshahithaul, Tehri Garwal, Uttarakhand

Dr. S. Solomon, Former, Director, Indian Institute of Sugarcane Research, Lucknow

Dr. T. K. Chakraborty, Director, Central Drug Research Institute, Lucknow

Dr. R. R. Sinha, Scientist G, Department of Biotechnology, New Delhi

Dr. G. J. Samathanam, Head, Technology Development & Transfer, Deptt. of Biotechnology, New Delhi

Dr. Mohd. Aslam, Scientist G., Department of Biotechnology, New Delhi

Prof. H. B. Singh, Department of Plant Pathology, Institute of Agriculture Sciences, BHU, Varanasi

Convener

Prof. Rana Pratap Singh, Coordinator, CIIPP, BBAU, Lucknow

## Executive Committee

Chairman and Coordinator

Prof. Rana Pratap Singh, Coordinator, CIIPP, BBAU, Lucknow

### Members

Dr. (Mrs.) Sunita Chandra, Registrar, BBAU

Prof. Vipin Saxena, DCS, BBAU, Lucknow

Prof. Shubhini Saraf, DAC, BBAU, Lucknow

Dr. R. A. Khan, DIT, BBAU, Lucknow

Dr. Narendra Kumar, DES, BBAU, Lucknow

Ms. Rachana Gangwar, DMCJ, BBAU, Lucknow

### Convenor

Dr. Naveen Kumar Arora, DEM, BBAU, Lucknow

---

## List of Research Projects (2009-2014) getting excuted at BBAU

Name of Department	Name of PI	Title of the Project	Funding Agency	Amount of Grant
DST Policy Research Centre				
	PI: Prof. R.C. Sobti Co-PIs: Prof. D.P. Singh (climate), Prof. R.P. Singh (Agriculture), Prof. Shubhini Saraf, Dr. Anand Prakash (Health), Dr. B.C. Yadav, Dr. Richa K. Tyagi (Energy), Dr. Venkatesh Dutta (Water)	Study of policies and mechanism that could facilitate delivery of STI output for social inclusion in Agriculture, Energy, Health, Climate and Water Sector.	DST, New Delhi	Rs. 5 crore
School for Ambedkar Studies				
Deptt. of Economics	Prof. N.M.P. Verma	Economic Miseries Among Social Groups	UGC , New Delhi	Rs.3,69,000/-
Dept. of Sociology	Prof Kameshvar Choudhary	Special Assistance Program (SAP) (DRS-1). (Coordinator: Prof Kameshwar Choudhary)	UGC , New Delhi	Rs. 51,00,000/-
	Dr. Manish Verma	Social, Ecological and Environmental Matrix in Rural-Urban UGC , New Delhi Interface: A Sociological Study of Peri-Urban Lucknow.	UGC , New Delhi	Rs. 6,57,200/-
	Dr. B.B. Malik	Poverty & Social Exclusion among Dalits: A Sociological Study of Varanasi (Eastern Uttar Pradesh).	UGC , New Delhi	Rs.6,81,800/-
Deptt. of Political Science	Dr. Sartik Bagh	Educational Status of Scheduled Cast in U.P.: Attainment and Challenges	Indian Council of Social Science Research, New Delhi	Rs. 53,00,000/-
School for Bio-Science and Bio-Technology				
Deptt. of Applied Animal Science	Dr. Abha Mishra	Identification and evaluation of reproductive traits and genetic structure of Ompok bimaculatus in India.	DBT, New Delhi	Rs. 17,03,000/-
		Teratogenic effects Hilban, an organic insecticide, on fresh water fish <i>Channa punctatus</i> (Bloch, 1793)	DST, New Delhi	Rs. 24,00,000/-
		Toxicological effect of Chlorpyrifos, an insecticide, on behavioral, physiological and biochemical aspect of fresh water fish <i>Channa punctatus</i> during its life span.	UP-CST, Lucknow	Rs. 8,40,000/-
	Dr. V. Elangovan	Chiropteran diversity and conservation in Uttar Pradesh.	Uttar Pradesh State Biodiversity Board, Lucknow	Rs.5,62,800/-

		Roost selection, roosting behavior and population dynamics of mouse - tailed bats ( <i>Rhinopomatidae</i> ) in Uttar Pradesh.	UGC , New Delhi	Rs.13,00,800/-
		Ultra structural and molecular characterization of guanophilic fungi of bats.	Science and Engineering Board, DST, New Delhi	Rs.12,00,000/-
Deptt. of Biotechnology	PI: Dr. Sangeeta Saxena Co-PI: Dr. G Sunil Babu	In-silico search for potential siRNA sequence to develop Gemini virus resistant papaya crop.	DBT, New Delhi	Rs. 24,82,000/-
		Developing one step multiplex PCR based diagnostic kit to detect viral disease and desired sex in juvenile papaya for improved production.	UGC, New Delhi	Rs. 10,84,339/-
	Dr. Anand Prakash	Role of Epigenetics in fear memory consolidation and extinction.	DBT, new Delhi	Rs. 63,07,012/-
		A Novel Role Of CREB and its target genes during Fear Memory Erasure leading to Extension.	DST, New Delhi	Rs. 26,20,000/-
Deptt. of Pharmaceutical Science	Dr. Sudipta Saha	Chemical investigation on anticancer bioactive substances from medicinal plants.	UGC-BSR Start-Up grant	Rs. 6,00,000/-
		Isolation, characterization and pharmacological screening of antidiabetic substances form medicinal plants.	UGC, New Delhi	Rs. 11,00,000/-
	Dr. Gaurav Kaithwas	Effect of Eicosapentanoic acid (EPA) and Docosahexanoic acid (DHA) on intestinal Mucosal Barrier Function against Methotrexate induced Toxicity in Albino Rats	UGC, New Delhi	Rs. 6,00,000/-
		Effect of $\alpha$ - Linolenic acid and $\gamma$ - Linolenic acid on Breast Cancer Risk: Evaluation of Synergistic Efficacy with an Anticancer Drug.	DST, New Delhi	Rs. 46,14,000/-
Deptt. of Applied Plant Science	Dr. Sanjay Kumar	Collection, Evaluation, Conservation and Exploitation of Underutilized Vegetables of U.P.	Uttar Pradesh Council of Agricultural Research, Lucknow	Rs.9,96,300/-
	Dr. Santanu Maji	Standardization of low cost eco-friendly drying dehydration techniques for flowers, foliages and underutilized horticulture	UGC, New Delhi	Rs. 6,00,000/-
<b>School for Environmental Science</b>				
DES	DST-FIST (2007-2011)		DST, New Delhi	Rs. 5 lakh
Deptt. of Environmental Science	Prof. Rana Pratap Singh	Entrapment of Bio-fertilizers in an organic matrix to enhance its efficacy for wheat productivity.	UP-CST, Lucknow	Rs. 5,04,000/-

	Dr. Shikha	Improvement of strain and optimization of laccase production from microbes.	UP-CST, Lucknow	Rs. 6,30,857/-
	Dr. Narendra Kumar	Impact Assessment of Dissolve Heavy Metals in Ground Water on Health and Water Quality in Industrial, Agricultural and Urban Areas of Kanpur, Uttar Pradesh.	UGC, New Delhi	Rs. 7,29,100/-
	Dr. Venkatesh Dutta	Multi-criteria spatial system for evaluating Environmental impacts of land use change in urban and peri-urban limits using remote sensing and GIS.	Space Application Center (SAC), ISRO	Rs. 10,48,000/-
		Preparation of 5 Years Action Plan for Artificial Recharge Activities and Water Conservation Schemes in Critical Block Bheetaragaon of Kanpur Nagar.	Ground Water Department, Kanpur Division, Govt. of U.P.	Rs. 90,200/-
Dept. of Environmental Microbiology		DST FIST program Sanctioned for Department (2014)	DST, New Delhi	40,00,000/-
	Prof. Ram Chandra	Metabolites characterization and detection of functional genome of melanoidin degrading enzyme involved during the decolourization of post methanated distillery effluent.	Department of Biotechnology, New Delhi, India	Rs.41,43,000/-
		Field scale demonstration of pulp paper mill effluent detoxification after secondary treatment of biostimulation and constructed wetland treatment process.	DST, New Delhi	Rs. 54,00,000/-
		Health hazards of pulp paper mill effluent detoxification after secondary treatment and characterization of Persistent Organic Pollutants and Microbial Communities.	MoEF, New delhi	Rs. 67,00,000/-
	Dr. Naveen Kumar Arora	Screening of sewage pollution in Ganga and assessment of its impact on ground water along the path of river flow in Kanpur.	UP-CST, Lucknow	Rs. 7,56,000/-
		Screening and identification of hot spots of sewage pollution containing multiple drug resistant E.coli in River Ganga at different location of Kanpur.	UGC, New Delhi	Rs. 6,83,700/-
		Designing multifaceted bioformulation technology utilizing fluorescent pseudomonas for cultivation and productivity enhancement of sunflower crop in arid and semi- arid regions infested with Macrophomina phaseolina.	CST, Lucknow	Rs. 8,50,000/-

		Revelation of mechanism and metabolites for biocontrol of deadly phytopathogens by plant growth promotory bacteria designing reliable technology for future bioformulations and sustainable agriculture.	CSIR, New Delhi	Rs. 24,00,000/-
		Developing broad spectrum biocontrol technology by utilizing and optimizing secondary metabolites from indigenous PGP Pseudomonads for controlling soil borne phytopathogens and ecofriendly agriculture.	Department of Biotechnology	Rs.17,00,000/-
	Dr. V.S. Baghel	Microbial Biodiversity and pollution Monitoring through indicator bacterial of Ganga River in Uttar Pradesh	CST UP	Rs. 9,00,000/-
	Dr. Jay Shankar Singh	PCR mediated detection of methane-oxidizing bacterial diversity from dry tropical forest soils.	UGC , New Delhi	Rs.6,00,000/-
	Dr. Ram Naresh Bhargava	Characterization of the recalcitrant organic pollutants (ROPs) and bacterial communities in tannery wastewater (TWW) after secondary treatment process and its toxicological effects in environment.	DST, New Delhi	Rs. 44,14,000/-
		Detection of persistent organic pollutants (POPs) and bacterial communities in distillery wastewater contaminated aquatic.	UGC, New Delhi	Rs. 6,00,000/-
<b>School for Home Science</b>				
Deptt. of Human Development and Family Studies	Prof.(Mrs) Sunita Mishra	Traditional locally available foods and associated Knowledge system relating to health and nutrition among adivasi women of Orissa (Kalahandi and Koraput district).	UGC , New Delhi	Rs.11,24,200/-
<b>School for Information Science and Technology</b>				
Deptt. of Information Technology	Dr. Raees Ahmad Khan	Quantifying Security in Early Stage Of Software Development Life Cycle: An Object Oriented Software Perspectives.	UGC , New Delhi	Rs.7,81,800/-

		Symptoms and Sensation due to Cellular Telephone Usage Among the Urban Rural Population of Uttar Pradesh: A Risk Assessment.	CST, UP (under Young Scientist Scheme)	Rs.6,36,000/-
		Integration, Analysis and Implementation of Prosodic & MFCC features for Automatic Speaker Recognition System using GMM.	CST, UP (under Young Scientist Scheme)	Rs.7,82,000/-
Dept. of computer Science	Dr. S.K. Dwivedi	Analysis and Design of Hindi Web Mining System for Improved Relevancy by Query	UGC, New Delhi	Rs. 8,79,800/-
	Dr. Manoj Kumar	3 D Reconstruction using Tomography & Shape from X-techniques.	UGC , New Delhi	Rs. 6,00,000/-
<b>School for Physical Sciences</b>				
Dept. of Applied Chemistry	Dr. Shailesh Kumar	Synthesis and Biological evaluation of novel 4-alkylaminoethoxy substituted indene derivatives.	S E R B, DST, New Delhi under Fast Track Scheme for Young Scientists	Rs.18,12,000/-
Dept. of Applied Physics	Dr. Bal Chandra Yadav	To design and fabricate opto-electronic humidity sensor and other materials.	UP-CST, Lucknow	Rs.5,00,000/-
		Multimetallic nanoparticles In polymer matrix as precursors of magnetic sensor materials.	DST, New Delhi INDORUSSAIN Project	Rs.26,84,000/-
		Synthesis and characterization of nanostructured metal oxides and their applications as liquefied Petroleum Gas (LPG) Sensors.	UGC, New Delhi	Rs.8,03,000/-
		Synthesis of semiconductor metaloxide based nanocomposites using Sol-Gel and Hydrothermal /solvothermal techniques for the development of humidity and CO2 gas sensors.	DST, New Delhi	Rs. 22,14,000/-
		Preparation and properties of nanosized spinel and Orthoferite Oxides and their Relevance as Gas Sensor.	Board of Research Nuclear Research (BRNS)	Rs.24,74,000/-
		Synthesis and characterization of Thin and Thick Film Opto-Electronic Humidity Sensor Based on Metal Oxide Nanocomposites.	DST, New Delhi under international Financial Support (Indo-Russian)	Rs.26,84,500/-
	Dr. Devesh Kumar	Molecular Property Diagnostic Suite (MPDS): An OSDD Chemoinformatics Portal under CSIR-OSDD Project.	CSIR	Rs.5,00,000/-

	Dr. Ramesh Chandra	Calculation of reliable nuclear transmission matrix elements of neutrinoless double beta decay.	S E RB, (SERB) , DST	Rs.10,80,000/-
<b>School for Legal Studies</b>				
Dept. of Human Rights	Dr. Shashi Kumar	Caste Discrimination and Human Rights Violation Against Dalits: A Case Study of Unnao District (Uttar Pradesh).	Indian Council for Social Science Research, New Delhi	Rs. 4,00,000/-
<b>Centre for the Study of Social Exclusion and Inclusive Policies</b>				
	Dr. Prasamita Mohanty	Status and Problems of Primary Education of Muslim Minority Girls and Policy Implications-A Study in Selected Districts of Uttar Pradesh.	UGC, New Delhi	Rs. 7,47,600/-
	Shri Rudra Prasad Sahoo	Politics of Rights, Livelihood & Exclusion: A case Study of Unnao District of Uttar Pradesh.	UGC, New Delhi	Rs. 95,000/-
		Democratic Essence, Political Community Representation and Dialogic Subject: A Comparison of Western Philosophical Reflection With that of Dr. Ambedkar.	ICPR	Rs. 3,00,000/-
	Sri Bibekananda Nayak	Tribal Women's Livelihood Security through the MGNREGA: A Case Study of Kandhamal District, Odisha.	UGC, New Delhi	Rs.1,30,000/-
		Influence of NRHM on Health Status of Scheduled Cast and Scheduled Tribe Women: a Case Study in Odisha.	ICSSR	Rs. 8,00,000/-
	Dr. Sangeeta Krishna	Atrocities on Dalits in Uttar Pradesh: Nature Factor and Remedies.	UGC, New Delhi	Rs. 6,70,200/-
		Folklore, Oral Traditional and History Writing: A Case Study of Folk Songs of Marginalized Communities in India (1857-1947).	ICHR	Rs. 1,65,000/-
		Unraveling Folklore and Oral Tradition of Marginalized Communities and its Role in Democratic Social Order.	ICSSR	Rs. 5,57,925/-
			Total Grant	Rs. 15,56,88,133/-

Total Ammount Recieved : Rs. Fifteen crore fifty six lakhs eighty eight thousand one hundred thirty three

### Patent Application

Nikilesh Kumar, Ram Naresh Bhargava, Gaurav Kaithwas (2013). Disinfection and cleansing composition of *L. usitattissimum* fixed oil. Application no.-1905/DEL/2013

# Patent Rules for Intellectual Property Rights (IPRs) Cell

Centre for Industry Institution Partnership Programme (CIIPP) has been striving to act as a podium for development and transfer of Technical and Managerial competence in the area of research and academics to meet the changing needs of the corporate sector and society at large. On the initiative of our Vice-Chancellor Prof. R.C. Sobti, Padam Shree, Centre for Industry Institute Partnership Programme (CIIPP) in its recent initiative in this direction has created Intellectual Property Rights Cell (IPR Cell) in collaboration with National and State patent agencies. IPR Cell will provide information, orientation and facilities to faculties, scientists and research students and of BBAU for protecting the products of their intellectual capabilities. The Cell would also be able to guide and advise researchers on how to obtain and sustain patents, facilitate routing of patent searches to National and State patent agencies and university and getting the necessary clearances from the competent authorities in the university while filing provisional/complete patent specifications. This Cell would also workout various modalities on behalf of the University for Technology transfer/ commercialization of patented technologies.

## Objective and Activities of the Patent Cell

1. To provide IPRs protection information, orientation and facilities to university researchers & scientists.
2. To guide and advise researchers on how to obtain and sustain patents and help them to approach National and State patent agencies.
3. To work as a link between National and State patent agencies and university.
4. To facilitate routing of patent searchers to National and State patent agencies.
5. To get necessary clearances from competent authorities while filing patents and other IPRs like copyright registration and design registration, etc. through National and State patent agencies.
6. To workout modalities on behalf of the universities for commercialization of patented technologies.
7. To organize various IPR awareness programmes in collaboration with National and State patent agencies, in its campus.
8. CIIPP/University will provide the financial support, if needed by the faculty, for preparation and submission of the patent application after a preliminary scrutiny.

## Some informations of Patent related issues

1. Intellectual Property Rights (IPRs)  
IPR is a general term covering patents, copyright, trademark, industrial designs, geographical indications, protection of layout design of integrated circuits and protection of undisclosed information (trade secrets) and protection of new plant variety.
  2. The aspects of IPR, we have Legislation in India  
Patents: In India legislations are available for Copyright, Geographical Indications, Plant Varieties, Design, and Semiconductor Integrated Circuit Layout Design.
  3. Who are responsible for administration of IPRs in the country?  
Patents, designs, trademarks and geographical indications are administrated by the Controller General of Patents, Designs and Trademarks which is under the control of the Department of Industrial Policy and Promotion, Ministry of Commerce and Industry. Copyright is under the charge of the Ministry of Human Resource Development.
  4. What is a patent?  
A patent is an exclusive right granted by a country to the owner of an invention to make, use manufacture and market the invention, provided the invention satisfies certain conditions stipulated in the law. A Letter Patent (a kind of certificate) is issued to the owner of the invention by the patent office of the country conferring this right. Exclusivity of right implies that no one else can make, use, manufacture or market the invention without the consent of the patent holder. This right is available to the owner of the invention only for a limited period of time.
-



5. What is expected from patentee as an obligation to the State?

A patentee must disclose the invention in a patent document for people to practice it after the expiry of the term of the patent or after the patent has lapsed due to nonpayment of maintenance fee or practice it with the consent of the patent holder during the life of the patent. Disclosure of an invention is a legal requirement for obtaining patent.

6. How is invention defined in the Indian Patent Act which can qualify for grant of a patent?

Invention means a new product or process involving an inventive step and capable of industrial application. Capable of industrial application means that the invention is capable for being made or used in an industry.

7. How do you explain the term .a new product or a process.?

An invention is considered new or novel if it is not known to the public through publication or prior use anywhere in the world. Oral description of the invention in a seminar/conference can also spoil novelty. Novelty is always assessed in the global context.

8. How is inventiveness defined in the Indian Patent Act? Explain the meaning of the term.

Inventive step is defined as a feature of an invention that involves technical advance as compared to the existing knowledge or having economic significance or both and that makes the invention not obvious to a person skilled in the art.

In other words a very simple invention can qualify for a patent. A mere scintilla of invention is sufficient to found a valid patent.

9. What is considered as the date of patent?

The date of patent is the date of filing the application for patent (whether provisional or complete). The term of the patent is counted from this date.

10. What is the term of a patent in the Indian system?

Term of the patent is 20 years from the date of filing for all types of inventions

---

# Rules for Consultancy Work by Academic and Technical Staff of Teaching Departments

1. The Academic/Technical staff (henceforth to be called as staff), who are Class A officers of the university, may undertake consultancy and or provide technical services to industry and other organizations, utilizing if necessary, facilities of the University.
  2. The services/consultancy provided may be of the following types:
    - I. Institutional Consultancy
    - II. Individual Consultancy
    - III. Technical Services
  - 2.1. Institutional Consultancy relates to advice render to an industry/organization, or work done for them, by a Department/group/individual on behalf of the University. The Principal consultant will be identified by the Vice-Chancellor, or the person of the Cell (Center for Industry Institution Partnership Program) authorized by them.
  - 2.2. Individual consultancy relates to consultancy or work undertaken by an academic staff member in his individual capacity.
  - 2.3. Technical services relate to providing of routine technical data/ information, analysis etc. and to fabrication of equipment, etc. and to fabrication of equipment, etc. which does not require interpretation of results or advice.
  3. A request for consultancy services shall normally be received by the Vice -Chancellor or the Liaison Cell (CIIPP) on behalf of the University. It may, however, be received directly by a staff member and forwarded to the University for its Consideration.
  4. Permission to undertake consultancy work upto 1 lakh rupees may be given by the Officer Incharge of the Liaison Cell (CIIPP) on the recommendation of the Head of the Department or by any another person authorized to do so Consultancy work of above 1 lakh of rupees shall be approved by the Vice-Chancellor.
    - 4.1 While approving of a consultancy proposal, the following will be taken into consideration:
      - (a) The normal duty of the individual staff member and the interest of the Department do not suffer;
      - (b) An individual staff member does not undertake consultancy work for more than 60 days (60 days in Calendar year, including holidays);
      - (c) The total annual income of an individual from consultancy work shall not exceed his/her total emoluments for six months in the Calendar year.
  5. While working out the cost of consultancy project, the following be taken into consideration:
    - 5.1 Cost of consultant's time, including intellectual fee.
    - 5.2 Cost of man days of the staff taking part in the project , excluding the consultant(s)
    - 5.3 TA and DA (as per agreement with the client).
    - 5.4 Cost of inputs (like chemicals, raw material and other types of consumables) and equipments.
    - 5.5 Usage charges on equipment (including depreciation and utilities, interalia)
    - 5.6 Payments to outside consultants.
    - 5.7 Cost of stationary.
    - 5.8 Computer charges.
    - 5.9 Miscellaneous.
    - 5.10 Administrative charges (10% of 5.2 to 5.9)
  6. The client shall pay 50% of the total project cost or cost of the items 5.2 to 5.9 above, whichever is higher, to the University Consultancy. All payments will be received by the University under a separate budget head of 'Consultancy Services'
-

7. The consultancy Services may be categorized into three classes:
    - 7.1 Advisory Consultancy in which University facilities are not used.
    - 7.2 Service Consultancy in which University equipments is used, but consumable or other materials are not required.
    - 7.3 Service consultancy in which University equipments is used and materials and consumables are provided by the university.
  8. Once the terms of consultancy have been approved, contract sign and advance received, it becomes the duty of the Principal Consultant to ensure the satisfactory progress and completion of the project in time. For this purpose, he may make temporary appointment of full-time or part-time staff for a period up to six months, draw advances and make expenditure in accordance with the requirements as the projects progresses. Vice-Chancellor's approval will be required for appointment of staff for period of more than six months.
  9. The distribution of consultancy amount received will be as under:
    - 9.1 In case of advisory Consultancy (7.1 above), 50% of the amount received for item 5.1 (cost of consultants' time, including intellectual fee) will be paid to the consultant(s) and 50% will accrue to the University.
    - 9.2 Similarly in case of Service Consultancy (7.2 and 7.3 above), 50% of the amount received for item 5.1 above will be paid to the consultant(s) involve and 50% will accrue to the University.
  10. In all cases (7.1, 7.2 and 7.3 above), the apportioning of consultancy amount will be as under:
    - 10.1 Out of total share of the University (i.e. 50% of the consultancy fee charged), 10% will be paid to the University as administrative charges, 20% will be paid to the 'Corpus Fund Foundation for Higher Education & Research' established by the University and 20% will be paid to the Consultant for TA/DA and other related expenditure of the consultant for visits/meetings etc. The rest 50% will be available to the department concerned for the purchase of equipment and/or material or for any academic activity and promotion of the industry participation.
    - 10.2 The amount to be distributed to the staff will be as per recommendation of the Principal Consultant approved by the Vice-Chancellor or any other person so authorized by him.
  - 11.1 Examination duties, delivered special lectures, Participation University, College and Public Service Commission Selection Committees and membership of Board of Directors of Companies are not included in consultancy services.
  - 11.2 The University may undertake outside work requiring services of the technical staff of the University which is part of their normal duty, on such terms and condition as may be approved by the Vice-Chancellor.
  12. Out of the sales made for a patent emerging from consultancy work, an annual royalty (to be divided equally between the consultants and the University) of a fixed percentage (to be decided by Vice-Chancellor) will be paid to the University by the client.
  - 13 On the completion of the consultancy project, a copy of the synopsis of the work, keeping in view the confidentiality clause of the project, and the audited statement of accounts will be submitted to the University / CIIPP for its records. Any unutilized amount will be transferred to the fund 'Higher Education & Research' of the University.
  14. In case of any ambiguity, the decision taken by the Vice-Chancellor will be final.
-

# Industry Institute Partnership: Scope and Promises

Industry and institutes are bound to play a central role in the nations' growth as the institutes are recognized as vital and important sources of knowledge whereas industries contribute in bringing high levels of employment, productivity and social evenness, by incorporating skill based knowledge in generating nations' development. In this era of globalization a mutual interaction of both is indeed crucial.

The institutions will have to play an increasing role to promote the industry in its technology upgradation and participate in the industries' plan for management of technology, Institutions will have also to assure the industries demand and assist the industry in its endeavor to make the necessary technology changes as per the current requirements.

“With the rapid advancement of knowledge and rapidly changing technology base, it has become absolutely essential that the industry and academic institutions must work together as partners”

(Massey et al 1992)

At global level where industries are modifying themselves according to technological advancement, we are still facing difficulties in bringing academia and industry closer together. According to annual survey of industries (ASI) in India total number of industries in operation were 158,877 in 2009-10 and the top five states in terms of employing persons in the industry sector were Tamil Nadu, Maharashtra, Gujarat, Andhra Pradesh and Karnataka, respectively, engaging about 18.9 lakh, 15.1 lakh, 11.6 lakh, 11.3 lakh and 8.9 lakh persons. These five states together had engaged more than half (55.8%) of total manpower engaged by the factory sector of the country. These five states were also the major ones in terms of their percentage share in aggregate Gross Value Added (GVA): Importantly the academic institutes of these states are also leading in bridging gap between industry and institutes. But for rest of the country more efforts are needed. Many surveys in India estimated that only 10% of MBA graduates are employable whereas for engineering students it is below 17%. It is also estimated that the required skill gap across industrial sector will be about 75-80% by 2020 (India Skill Report, 2014)

In developed countries various industries and institute are working in synergy which allows them to explore endless possibilities and also focusing to address socio-economic and technology-driven challenges. For example a three year study by Julio et al. (2010) aimed at determining best practices for industry-university collaboration collected data from 25 research intensive multinational companies from the aerospace, information technology, materials, consumer electronics, automotive, biomedical, mining, paper and petrochemical industries. These industries were associated with more than 100 universities and were involved in intensive funding of projects. Roughly 50% of the examined projects showed best outcomes i.e., produced new ideas or solutions to problems, developed new methods of analysis or generated new intellectual property of potential benefit for the company. The fact that almost half the projects had successful and consequential outcomes suggests that these companies along with universities have been successful in getting the required.

Lal et al. (2001) in their book “The R& D challenges before the Indian industry” suggested some key steps that universities should have to apply for the betterment of industry institute partnership and some of the initiatives are:

- Industries should permit Graduate and Post Graduate students to do project work relating to their problems, especially in the R & D region.
- The institute should have a list of areas in which they have capabilities for consultancy, testing and research and transmit the same to the leading industries.
- Members from industries periodically should visit institutions to assess for themselves the facilities available therein, which they can utilize. Discussion with the faculty has been effective way and culminated in projects wherein either staff or research scholars work on problems relating to the industry

“While many Indian institutions struggle to perform strongly across all of our rankings indicators, which are dominated by research performance indicators, they do have a strong and proven track record of working successfully with industry”

Phil Baty Editor-at-large Times Higher Education (Reply of a Mail)

Reddy (2001) suggested that institutions need to be prepared for successful interactions with industry. Industries have ample of resources but these resources in most of the institutions are underutilized. He also addressed how to use these resources:

Technology executives believe that US, China and India are the top three countries with the potential to drive technology breakthroughs in the next few years (Technology Innovation Survey, 2013)

- Providing testing, analysis, consultancy and counseling services
- Carrying out sponsored research and developing newer technologies
- Assessing training requirements of industry and catering to them through extension education programs
- Evaluation and engineering analysis of technologies (many technologies may require evaluation and analysis prior to commercial scale implementation)

Slowly but surely an optimistic view is being developed by various industries towards such mutualistic interaction and many premier institutions have been trying to communicate with industry and outcome in the form of new invention, technology upgradation and skill development are nourishing to both and helping in nation development. Furthermore, India ranked second as an innovation centre, as the third most promising nation for disruptive breakthroughs, and the fourth friendliest technology innovation country. (Business World News, 2013) yet, India lags other key countries in research investment and output. Data suggests that global investments in sciences, technology and innovation were estimated at \$1.2 trillion as of 2009. India's spending on research and development (R&D) is less than 2.5% of this, and under 1% of its gross domestic product (GDP) and experts predict that India requires, among many other policy-based actions, larger investments in R&D and more full-time equivalent professionals. This can be achieved by more academia-research-industry partnerships, promotion of inter-disciplinary research and create a national scientific temper in this direction.

Jitendra Mishra & Naveen K Arora  
Department of Environmental Microbiology  
BBA University, Lucknow

## Reference

- Business World News (2013) India Tops Tech Innovation Confidence Index available online <http://www.businessworld.in/news/business/it/india-tops-tech-innovation-confidence-index/992119/page-1.html>
- India Skill Report -2014 prepared by Confederation of Indian Industries (CII)
- Julio A. Pertuzé, Edward S. Calder, Edward M. Greitzer And William A. Lucas (2010) Best Practices for Industry-University Collaboration. MIT Sloan Management Review Vol. 51:83-85
- Lal VB, Mathur HS, Bawa HS (2001) The R& D challenges before the Indian industry: Time to look have our universities". Allied Publisher Ltd.
- Massey D, Quintas P, Wield D (1992). High Tech Fantasies: Science Parks in Society. Science and Space. London: Routledge
- Reddy S (2001) Preparing Institutions for Successful Interactions with Industry. In: Lal et al. (eds.) The R& D challenges before the Indian industry: Time to look have our universities", pp 47-61
- Technology Innovation Survey (2013) available online <http://www.kpmg.com/CN/en/IssuesAndInsights/ArticlesPublications/Documents/KPMG-technology-innovation-survey-2013-O-201311.pdf>
-

## Details of some Faculty Members

School for Ambedkar Studies		
Deptt. of Economics	Dr. Neel Mani Prasad Verma (Professor)	
	Qualification	M.A. (Economics)& Ph.D. (Economics)
	Research Interest	Development, Macro, Industry
	E-mail	nmpverma@gmail.com, nmpverma@gmail.com
	Dr. Sanatan Nayak (Associate Professor & Head)	
	Qualification	M. A., M.Phil., Ph.D. in Economics, M.Sc. in Ecology and Environment
	Research Interest	Environmental Economics, Agricultural Economics, Computer Application, Econometrics
	E-mail	sanatan5@yahoo.com
	Sri Devendra Kumar Yadav (Assistant professor)	
	Qualification	M.A.,Ph.D
	Research Interest	Monetary Economic, Imformal Sector
	E-mail	dev1985icfai2gmail.com
	Dr. Surendra Meher (Assistant professor)	
	Qualification	M.A., M.Phil., Ph.D.
Research Interest	Agriculture Growth and Investment, Economics of Labour and Employment	
E-mail	surendrameher@yahoo.com	
Deptt. of Sociology	Dr. Manish Kumar Verma (Associate Professor & Head)	
	Qualification	M.A, M.Phil, Ph.D. (JNU, New Delhi)
	Research Interest	Globalisation; Social Justice and Transformation
	E-mail	mkvbbau@gmail.com
	Prof. Kameshwar Choudhary (Professor)	
	Qualification	M.A, M.Phil, Ph.D. (JNU, New Delhi)
	Research Interest	Globalisation, Social Justice and Transformation
	E-mail	kames.c@ gmail.com
	Dr. Bibhuti Bhushan Malik (Associate Professor )	
	Qualification	M.A, M.Phil, Ph.D. (JNU, New Delhi)
	Research Interest	Poverty and Social Exclusion
	E-mail	bbmalik57@ gmail.com
	Dr. Brindra Narain Dubey (Assistant Professor)	
	Qualification	MA, M Phil, Ph. D. (JNU, New Delhi)
	Research Interest	Sociological Theory, Social Justice
	Brijesh Kumar (Assistant Professor)	
	Qualification	MA, (Ph. D. pursuing)
	Research Interest	Youth Studies, Social Demography
	E-mail	bksocio@gmail.com
	Dr. Jaya Srivastava (Assistant Professor)	
Qualification	M.A. (BHU), Ph. D. (VKSU)	
Research Interest	Gender Studies, Social Gerontology, Human Rights and Social Justice, Sociology of Marginalized Communities, Research Methodology.	
E-mail	jayabbau@gmail.com , jayasrivastava0210@gmail.com	

School for Bio-Science and Bio-Technology

Deptt. of Applied Animal Science	Dr. Kamal Jaiswal (Associate Professor & Head)	
	Qualification	Ph.D.
	Research Interest	Parasitology/Sericulture
	Dr. V. Elangovan (Associate Professor)	
	Qualification	Ph.D.
	Research Interest	Animal Behaviour and Conservation Biology
	E-mail	elango70@yahoo.com
	Dr. Venkatesh Kumar R. (Assistant Professor)	
	Qualification	M.Sc. Ph.D.
	Research Interest	Sericulture, Seribiotechnology and Extension
	E-mail	drvenkateshkumar@yahoo.com
	Dr. Suman Mishra (Assistant Professor)	
	Qualification	Ph.D.
	Research Interest	Parasitology/General Biology
Dr. Abha Mishra (Assistant Professor)		
Qualification	Ph.D.	
Research Interest	Fish Physiology/Toxicology	
Deptt. of Applied Plant Science	Dr Deepa H. Dwivedi (Associate Professor & Head)	
	Qualification	Ph.D. Horticulture
	Research Interest	Pomology, Plant Physiology
	E-mail	deepahansraj@rediffmail.com
	Prof. R. B. Ram (Professor & Dean, School for Physical Sciences)	
	Qualification	M. Sc (Ag.) & Ph. D. (Horticulture)
	Research Interest	All branches of Horticulture especially in Fruit Science (Pomology)
	E-mail	rbram@rediffmail.com
	Dr. Sanjay Kumar (Associate Professor)	
	Qualification	Ph. D. Horticulture
	Research Interest	All branches of Horticulture especially in Vegetable Science
	E-mail	Sanjay123_bh@yahoo.com
	Dr. M. L. Meena (Assistant Professor)	
	Qualification	Ph.D. Horticulture
	Research Interest	Breeding of Horticulture Crops (Vegetable Crops)
	E-mail	maheriari@rediffmail.com
	Dr. Sutanu Maji (Assistant Professor)	
	Qualification	Ph.D. Horticulture (Fruits & Orchard Management)
Research Interest	Breeding of Horticulture Crops (Vegetable Crops)	
E-mail	majisutanu@gmail.com	
Deptt. of Biotechnology	Prof. M.Y. Khan (Head & Dean, Department of Biotechnology)	
	Qualification	M.Sc., M.Phil., Ph.D.
	Research Interest	Protein chemistry and enzyme technology
	E-mail	profmykhan@rediffmail.com
	Dr. Dinesh Raj Modi (Associate Professor)	
	Qualification	Ph. D Life Science, M.Sc Microbiology
Research Interest	Microbial Biotechnology: Bioremediation, Microbial Production of Enzymes, Amino Acids and Microbial Genetics.	

	E-mail	drmodilko@gmail.com
	Dr. Sangeeta Saxena (Associate Professor)	
	Qualification	M.Sc., M.Phil, Ph.D.
	Research Interest	Plant Molecular Biology, Molecular Markers, Transgenic Plants
	Dr. Gosipatala Sunil Babu (Assistant Professor)	
	Qualification	M.Sc., Ph.D.
	E-mail	sunil_gos@yahoo.com
	Dr. Anand Prakash (Assistant Professor)	
	Qualification	M.Sc. Ph.D. Biochemistry
	Research Interest	Neurophysiology
Deptt. of Pharmaceutical Science	Prof. Shubini A Saraf (Professor & Coordinator, Dean, School for Bioscience & Biotechnology)	
	Qualification	M.Pharm., Ph.D.
	Research Interest	Lipoidal Nanotechnology; novel drug delivery
	E-mail	shubhini.saraf@gmail.com
	Dr. Gaurav (Assistant Professor)	
	Qualification	M.Pharm., Ph.D.
	Research Interest	Gastroenterology, $\omega$ - 3 Fats, Inflammatory Disorders
	E-mail	gauravpharm@gmail.com, gauravhmd@yahoo.com
	Dr. Sudipta Saha (Assistant Professor)	
	Qualification	M.Pharm., Ph.D.
Research Interest	Pharmacokinetics, Cellular Toxicity	
	E-mail	Sudiptapharm@gmail.com
School for Environmental Science		
Deptt. of Environmental Microbiology	Dr. Naveen Kumar Arora (Coordinator & Associate Professor)	
	Qualification	M. Sc. (Microbiology), Ph. D. (Microbiology)
	Research Interest	Environmental and Agricultural Microbiology
	E-mail	nkarora_net@rediffmail.com, nkarora.bbau@gmail.com
	Dr. Rajesh Kumar (Associate Professor)	
	Qualification	M. Sc. (Microbiology), Ph. D.
	Research Interest	Immunosensors (Bioremediation of petroleum and heavy metal affected sites)
	E-mail	rajesh4971@yahoo.com, Rajesh_skumar@yahoo.co.in
	Dr. Vinay Singh Baghel (Assistant Professor)	
	Qualification	M. Sc., Ph. D.
	Research Interest	Environmental Microbiology/ Env. Biotechnology/ Toxicology
	E-mail	vinayanupma@yahoo.com
	Dr. Jay Shankar Singh (Assistant Professor)	
	Qualification	M. Sc., Ph. D.
	Research Interest	Microbial Ecology and Environmental Microbiology
	E-mail	jayshankar_1@yahoo.co.in
	Dr. Ram Naresh Bhargava (Assistant Professor)	
	Qualification	M. Sc., Ph. D.
	Research Interest	Bioremediation, Metagenomics and Rhizosphere Microbiology
E-mail	bharagavabiotech77@gmail.com, bharagavabiotech77@rediffmail.com	



Deptt. of Environmental Science	Prof. D.P. Singh (Dean & Head School of Environmental Science)	
	Qualification	M.Sc., Ph.D. (Botany)
	Research Interest	Environmental Microbiology, Stress Physiology
	E-mail	dpsingh_lko@yahoo.com, website=www.http//:dpsingh.co.in
	Dr. Rana Pratap Singh (Professor)	
	Qualification	M.Sc. (Botany), Ph.D. (Life Sciences), FAEB, FISPP
	Research Interest	Sustainable Agriculture, Slow Release Fertilizers, Bioremediation and climate change
	E-mail	ranapsingh1@hotmail.com ; cceseditor@gmail.com; Website: www.ranapratap.in
	Dr. S. K. Dwivedi (Associate Professor)	
	Qualification	M.Sc., Ph.D. (Botany)
	Research Interest	Microbial Ecology, Environmental Microbiology
	Mr. N. K. S. More (Associate Professor)	
	Qualification	M.Sc., M. Phil
	Research Interest	Cell & Developmental Biology, Toxicology, Environmental Policies and Management
	E-mail	nkmore2000@yahoo.com, nkmore2010@gmail.com
	Dr. Shikha (Assistant Professor)	
	Qualification	M.Sc., Ph.D. (Microbiology)
	Research Interest	Environmental Microbiology
	E-mail	dr_shikha2003@yahoo.co.in
	Mr. Narendra Kumar (Assistant Professor)	
	Qualification	M.Sc. (Environmental Science)
	Dr. Venkatesh Dutta (Assistant professor)	
	Qualification	M.Sc. (Environmental Management), Ph.D. (TERI)
	Research Interest	Environmental Management, EIA, Modelling, Policy Analysis, Environmental Planning
E-mail	dvenks@gmail.com	
Dr. Richa Kothari Tyagi (Assistant Professor)		
Qualification	M.Phil (Energy & Environment), Ph.D. (Renewable Energy)	
Research Interest	Renewable energy and Wastewater Treatment Technologies	
E-mail	kothariricha21@yahoo.com	
School for Info. Science and Technology		
Deptt. of Computer Science	Dr. Sanjay K. Dwivedi (Associate Professor & Head)	
	Qualification	MCA, Ph.D (Computer Science)
	Research Interest	Artificial Intelligence, NLP and Sense Disambiguation, Web Mining, Compiler Design
	E-mail	skd200@yahoo.com
	Dr. Vipin Saxena (Professor & Dean)	
	Qualification	M. Sc. (Applied Mathematics), MCA, MBA, M.Phil. (Comp. Appls.), Ph.D.(I.I.T., Roorkee)
	Research Interest	Scientific Computing/Software Engineering
E-mail	vsax1@rediffmail.com	

	Dr. Deepa Raj (Assistant Professor)	
	Qualification	M.Sc. (Computer Science), Ph.D.(Computer Science),NET
	Research Interest	Computer Graphics, Data Structure and Software Engineering
	E-mail	deepa_raj200@yahoo.co.in
	Dr. Manoj Kumar (Assistant Professor)	
	Qualification	MCA-JNU(New Delhi), Ph.D(I.I.T., Roorkee), NET-JRF
	Research Interest	Computer Vision, Graphics & Image Processing
	E-mail	mkjnuiitr@gmail.com
	Dr. Narander Kumar (Assistant Professor)	
	Qualification	MCA, Ph.D (Computer Science & Information Technology)
	Research Interest	Computer Networks, Object Modeling Networks Simulation (OMNETPP)
	E-mail	nk_iet@yahoo.co.in
Deptt. of Information Technology	Dr. Raees Ahmad Khan (Associate Professor & Head)	
	Qualification	MCA, Ph.D.
	Research Interest	Software Security, Software Quality Estimation,Software Testing
	E-mail	khanraees@yahoo.com
	Raj Shree (Assistant Professor)	
	Qualification	MCA, M.Tech., NETMCA, M.Tech., NET
	Research Interest	Mobile Ad Hoc Networks, Wireless Sensor Network, Routing, Security
	E-mail	rajshree.bbau2009@gmail.com
	Pawan Kumar Chaurasia (Assistant Professor)	
	Qualification	MCA, NET
	Research Interest	S/W Eng., Data Mining
	E-mail	pkc.gkp@gmail.com
	Dr. Dharendra Pandey (Assistant Professor)	
	Qualification	MSc (Computer Sc.), MPhil (Computer Sc.), PhD (Computer Sc.), JRF-NET
Research Interest	Software Engineering, Data Mining and Warehousing, Requirement Engineering	
E-mail	prof.dhiren@gmail.com	
School for Management Studies		
Deptt. of Rural Management	Dr. Kushendra Mishra (Associate Professor & Coordinator)	
	Qualification	PhD (Business Administration)
	Research Interest	Nonprofits, Performance Management, Monitoring, Accountability, Strategy and Micro planning
	E-mail	kushendra78@gmail.com
	Dr. Md. Shakil Khan (Associate Professor)	
	Qualification	MBA ,PhD
	Research Interest	Marketing, International Business & Rural Marketing.
Area Specialisation	Marketing, International Business, International Marketing, Advertising and Management.	

	E-mail	mdshakeelkhan@sify.com, shakeeldrm@gmail.com
	Mr. Abhilash Babu (Assistant Professor)	
	Qualification	M.A, M.Phil, UGC - NET/JRF
	Research Interest	Participatory Development
	Area Specialisation	Participatory Development, Natural Resource Management (Water Governance), Decentralization.
	E-mail	abhijnu@gmail.com
	Dr. Rashi Krishna Sinha (Assistant Professor)	
	Qualification	PhD ,UGC(NET)
	Research Interest	Economics, Agriculture, Rural Development, Agreement of Agriculture (AoA) (WTO) Women Issues
	E-mail	sinharashil5@gmail.com
<b>School for Physical Science</b>		
Deptt. of Applied Chemistry	Dr. Gajanan Pandey (Associate Professor & Coordinator)	
	Qualification	M.Sc. ,Ph. D.
	Research Interest	Materials Chemistry, Coordination Chemistry, Environmental Chemistry
	E-mail	pandeygajanan@rediffmail.com
	Jyoti Pandey (Assistant Professor)	
	Qualification	Ph. D. from J. N. U.(New Delhi)
	Research Interest	Development of new synthetic methodologies, Receptor based designing and synthesis of new bioactive molecules, Spectroscopic characterization of various desired and undesired products in organic reactions, Asymmetric synthesis.
	E-mail	reenucdri@gmail.com
	Dr. Shailesh Kumar (Assistant Professor)	
	Qualification	Ph.D. (CDRI, Lucknow)
Research Interest	Synthetic Medicinal Chemistry, Diversity Oriented Synthesis towards drug development, Lead generation and Lead optimization	
E-mail	drskum10@gmail.com	
Deptt. of Applied Physics	Dr. Bal Chandra Yadav (Associate Professor & Coordinator)	
	Qualification	Ph. D.
	Research Interest	Synthesis of Nanomaterials/ Nanocomposites, Characterizations, Thin Film/ Thick Film Sensors, Humidity Sensors, LPG Sensors and Pressure Sensors, Renewable Energy, Solar cells, recycling of waste PV modules
	E-mail	balchandra_yadav@rediffmail.com, nano.lu71@gmail.com
	Dr. Devesh Kumar (Associate Professor)	
	Qualification	B.Sc., M.Sc., Ph.D.
	Research Interest	Simulations of intermolecular interactions in mesogens and biological molecules
	E-mail	dkclcre@yahoo.com
	Dr. Ramesh Chandra (Assistant Professor)	
	Qualification	Ph.D
Research Interest	Nuclear double beta decay, Nuclear and particle	

	astrophysics
E-mail	ramesh.luphy@gmail.com