

PROFESSIONAL CONSULTATION SERVICES

BITS, PILANI, GOA-CAMPUS



**BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI,
GOA CAMPUS, ZUARINAGAR- 403726, GOA
November, 2008**

Preface

BITS Pilani Goa Campus has grown to a distinguished institution since its beginning in 2004 as the second campus in India of the parent institution BITS Pilani Rajasthan. We have dedicated and talented faculty (140) in different disciplines who offer excellent technical education and are also involved in cutting edge research. Consultancy services have been extended by individual faculty members. BITS Pilani Goa campus has initiated an effort to institutionalize the professional consultation services to the industry and academia. This brochure highlights the exceptional human resources and some of state of the art infrastructure available at the campus in various fields of engineering, sciences, humanities and management. We have consolidated and categorized the professional consultancy services that our faculty might provide to your organization.

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BITS Pilani

The Birla Institute of Technology and Science (BITS), Pilani is a prestigious institute in India and is recognized as a deemed University under Section 3 of the UGC act. It is a privately financed co-educational institution and admits around 2000 male and female students annually to the three campuses (<http://discovery.bits-pilani.ac.in/index.html>) through a strictly merit based online entrance test conducted in centers spread all over India (<http://www.bitsadmission.com/admn/fd/fdmain.html>).

The institution started as a small 'pathasala' in 1901 at Pilani and it evolved into a degree college in 1943, and in 1952 was bifurcated into a College of Art and a College of Science, Commerce and Pharmacy. The Government of India started a Technical Training Centre during the World War II in Pilani to train technicians for defence services. Late Shri G.D.Birla had converted this Centre into a College of Engineering in 1946. Later in 1964, the College of Arts, College of Science, Commerce and Pharmacy and the College of Engineering were all integrated into The Birla Institute of Technology and Science, Pilani. In these early days, BITS Pilani started functioning with the support of the Ford Foundation Grant and in collaboration with Massachusetts Institute of Technology (MIT), Massachusetts, USA. The Institute also adopted a semester system with modular structure of courses, continuous internal evaluation, letter grading and created institutionalized linkage with industries. BITS Pilani was among the first few institutions in India to adopt these new strategies in training students to cater to the current requirement of the industry (<http://discovery.bits-pilani.ac.in/academics.html>).

BITS Pilani Goa campus

BITS Pilani Goa campus is in its fifth year and offers eleven first degree programmes in Engineering, Science and Humanities. This year (2008-09) the institute has started higher degree (M.E.) programmes in Design Engineering and Biotechnology. Currently the number of students in the campus is 2500 and the number of faculty members is 140. The Institute has developed state of the art laboratories and other research facilities and has recruited a balanced mix of

enthusiastic young faculty and experienced Professors. To further the enthusiasm and potential of the faculty members, the institution has encouraged them to pursue active research in their fields of interest through earning extramural funding from national and international funding agencies. The funds will be used in part to further develop the existing facilities which will be useful for training undergraduate students, starting new higher degree programmes, to carry out research in advanced areas and to provide consultancy services. Presently, there are 22 research projects funded by various National and International funding agencies. Several research scholars (SRF/ JRF) have been chosen to work in these projects. Various National and International Organizations have reaped benefits of the consultancy services provided by some of our distinguished faculty members.

This brochure is an institutional effort to draw your attention to potential Consultancy Services to be availed of by your organization. Here we have also listed the current research being done in the Institute (Annexure I), highlighted the existing facilities available on campus (Annexure III) and provided details of possible Consultancy services (though not limited to just these) that our faculty could provide for your organization.

Research Activities

BITS Pilani Goa Campus encourages research within the campus. The students at all levels are encouraged to participate in research. The undergraduate students, as a part of their academic requirement, are involved in various laboratory and computer related projects. Faculty members recruited with Master's Degree are encouraged to work towards earning higher degrees in specializations of their choice. Senior Faculty members are involved in advising research scholars thereby bringing in their expertise and experience to the progress in research.

Research Thrust Areas

The Institute has identified thrust areas with the goals of achieving sustainable development and to strengthen University- Industry linkage. Broadly, the thrust areas include:

- Green Technology Development
- Modeling and Simulation
- e – Governance

- Communication and Information Technology
- Advanced Materials and Applications

Promotion of Research

The BITS education system offers several opportunities to members of faculty to pursue research and to involve students at all levels through specialized projects, in the chosen research area. Faculty members with relevant experience are encouraged to develop research programmes for involving students on a competitive basis, as reported below:

Faculty Development Scheme

The faculty members, recruited as Assistant Lecturers, possessing post graduate degrees, such as M.E., M.Tech, M.Phil. Degrees are offered opportunities for pursuing their Ph.D. degree programmes, on qualifying the Ph.D. Qualifying Examination (PHQE), conducted by Research and Consultancy Division, BITS, Pilani. The qualified candidates are required to submit research proposal for approval of the research board. Faculty members are encouraged to pursue to Ph.D. programme while participating in the teaching activity.

Research at Student Level

Every semester, the students of first-degree programmes opt for project type courses, as elective courses, under the supervision of faculty Instructor. These courses aim at developing skills and capability for undertaking Lab Oriented experimental work, Computer Oriented software based application development and testing, advance study pertaining to research problems at hand. These courses aim at exposure to and developing manpower capability for advanced research. About 250 students opt for these courses every semester, in various disciplines. Senior undergraduate students have the choice of doing research for a semester and submit a thesis under the guidance of appropriate faculty. Higher degree students, as a part of their curriculum finish one semester long research project under the guidance of a suitable faculty. Advanced research in various fields is also done by Research Fellows recruited to work for research projects sponsored by National Funding agencies register for a PhD degree under the guidance of the members of the faculty.

Sponsored Research Projects

Faculty members are encouraged to submit research proposals to various funding agencies for sponsored research projects. The research for the sponsored projects is carried out by recruiting special purpose staff, as provided under the project and faculty members who are pursuing research. Till date, many faculty members have obtained research funds from various research agencies including Depts. of Science and Technology, DRDO, CSIR, Ministry of Chemicals and Fertilizers, Govt. of India, Swedish Research Council, etc. The ongoing projects include twenty two sponsored research projects, in different research areas viz Bio-Nano Technology, Environmental Bio-technology, Radio Astronomy, Biosensors & Bioanalysis, Membrane separations, Semiconductor Physics and Materials, new energy , environmental management etc. The details of sponsored research project are given in Annexure I. The details of the projects under review are given Annexure II.

Available Infrastructure

As a part of academic requirements, BITS Pilani Goa Campus has developed some State of the Art Laboratories and centralized facilities. These facilities are also being very much used for research and consultancy work. The list of laboratories developed is given in Annexure III.

Professional Consultancy Offered

The following table lists out specific consultancy services that could be offered by our faculty using their expertise and the resources within the campus. The services offered have been classified based on the various areas of engineering and sciences.

Consultancy Services offered	Name of the Expert	Consultancy Charges
Biological Sciences		
PCR based detection of food-borne pathogens in dairy foods, other food samples and water	Dr. Utpal Roy	Rs. 7000/- per sample
PCR based detection of human pathogens from infected patients	Dr. K Prakash	Rs. 10,000/- per sample
A). Waste water Analysis and solid waste analysis. Parameters: Chemical oxygen Demand. Biological oxygen Demand. Total Kjeldahl Nitrogen and other	Dr. M Srikanth	Rs. 5000/- per sample

Parameters. B). Gas Chromatography analysis of Hydrocarbons, Pesticides etc.		
Lyophilization of microbial samples	Utpal Roy and Meenal Kowshik	Rs. 1000/-per sample (5 ampoules of 10 ml culture)
<ul style="list-style-type: none"> • Microbiological analysis of water and food from different sources. • Photomicrography of microbial samples 	Dr. Meenal Kowshik and Judith Braganca	Rs. 3000/- Rs. 500/-
Enzyme analysis for samples	Dr. Saby John	5000/- per samples
BLAST, PSI BLAST, Phylogenetic Analysis	Veeky Baths	Rs.1500/ per analysis
<ul style="list-style-type: none"> • Computational Biology & Chemistry including problems of genomics, proteomics, microarrays etc. • Business matchmaking between pharmaceutical/clinical research companies of India and Europe potentially leading to collaborations, joint ventures etc. 	Dr. Meeta Rani and Veeky Baths	Depends on nature and extent of services.
Chemistry		
Industrial effluent treatment for removal of organic and inorganic pollutants.	Dr. Sunil Bhand	Rs.1000 per meeting
Toxicity testing for pesticide residues in water, cashew nuts, wines etc.	Dr. Sunil Bhand	Rs.1000/- per sample
Recording of FT-IR spectra for solid samples.	Prof AP Koley	Rs.100/- per sample
Powder X- Ray Diffraction analysis for refractory, cement, ceramics, pharmaceutical samples	Dr. NN Ghosh	Rs.200/- per sample
Thermo Gravimetric and Differential Thermal analysis (TGA- DTA)	Dr. N.N. Ghosh	Rs.300/- per sample
Structural analysis by X-ray diffraction. (interpretation)	Dr. R.N. Panda	Rs.200/- per sample for phase analysis. Rs.200/- per sample for crystallite size.
Synthesis of nanomaterials (Ferrites, hydroxyapatite, metal alloys, nitrides, spintronics materials)	Dr. R.N. Panda	Case by Case
Interpretation of magnetism in ultra fine particle	Dr. R.N. Panda	Case by Case
Computational modeling using Quantum mechanical methods, molecular mechanics	Dr. R.N. Behera	Case by Case

Chemical Engineering		
Membrane separation process (i.e. ultrafiltration, microfiltration, nanofiltration, reverse osmosis, pervaporation, membrane distillation etc) for process and water stream applications	Dr. Srinivas Krishnaswamy	Charges on a case by case basis (which will include charges for man hours, equipment, software usage, sample analysis etc.)
Process modelling and Simulation	Dr. Srinivas Krishnaswamy	Charges on a case by case basis (which will include charges for man hours, equipment, software usage etc.)
Thermodynamic and transport properties of liquid and liquid mixtures	Dr. Srinivas Krishnaswamy / Dr. Ranjan Dey	Charges on a case by case basis (which will include charges for man hours, equipment, sample analysis etc.)
Operational Improvements in Chemical process plants / manufacturing units for increase in productivity and reduction in environmental emissions via Life cycle assessment studies. This will be achieved by studying existing processes through Modeling and Simulation, inventory analysis and optimization of key variables	Dr. S. D. Manjare and Dr. Saroj Baral	Charges on a case by case basis (which will include charges for man hours, softwares etc.)
<ul style="list-style-type: none"> • Adsorption Technology for removal of Volatile Organic Compounds (VOCs), and inorganic pollutants from gaseous streams • Efficiency improvement in wastewater treatment technologies through modeling & simulation and optimization studies 	Dr. S. D. Manjare and Dr. Saroj Baral	Charges on a case by case basis (which will include charges for man hours, softwares, equipments, sample analysis etc.)
Efficiency Improvement and Water Management in Proton Exchange Membrane (PEM) Fuel Cell via dynamic studies and optimization of key variables.	Dr. S. D. Manjare	Charges on a case by case basis (which will include charges for man hours, softwares, membranes, fuel gas etc.)
Computers and Information systems		

Training in usage for fast-tracking IT strategy (Expert can offer training in programming languages C, C++, Java, FORTRAN etc.), graphics based output in AutoCAD, Java and OpenGL, training for use of Software packages available in Windows/Linux platforms)	Neena Goveas	Rs.3000/- per day
Developing a portal for HR Management		Project basis
Secure Administration and management systems		Project basis
<ul style="list-style-type: none"> • AutoCAD/AutoLisp : CAD Automation. • C/C++. • OS, System Software, Unix, GNU/Linux, other Unix variants. • Microprocessor-based / PC-based Control Systems (Digital part). • Numerical Methods and Software. • Indianization of Database/Accounting Software. 	Ramprasad Joshi	Rs. 4800/- per working day (8-12 hours) or Rs. 600/- per hour.
Distributed Computing	Bharat Deshpande	Rs.5000/- per day
Content designing for Hand held devices	Nitin Upadhyay	Rs. 5 Lacs/ Project Basis
Instructional design		Rs. 5 lacs/ Project Basis
COTS Evaluation, Selection and Ranking		Rs. 7 Lacs/ Project Basis
Component Based Software Evaluation		Rs. 10 Lacs/ Project Basis
Quality Evaluation of Component Based Software Architecture		Rs. 10 Lacs/ Project Basis
Training on UML 2.0		
Training on Developing Mobile Applications		Rs. 2000 per hour
Training on Object Oriented Concepts		Rs. 2000 per hour
Training on Java, C, C++		Rs. 3000 per hour (per language)
Training on QFD, MCDM		Rs. 25000 (one day)
Training on Decision Approaches		Rs. 45000 (Two day)
Training on Human Computer Interaction Modules		Rs. 3000 per hour
Web Site Designing	Mangesh Bedekar	Rs. 3000 /- Per Day
<ul style="list-style-type: none"> • Data Mining • Artificial Intelligence • Web Intelligence / • Ontology 	Jayati Ghoshal	

• Robotics		
Humanities and Management		
Presentation Skills	Dr.Joy Anuradha	Rs.1,00,000
Business Correspondence		
Persuasive Strategies		Rs.1,00,000
Public Speaking		
Resume Writing		Rs.1,00,000
Acing GDs, Interviews		Rs.2,00,000
Communication Skills for Leaders		Rs.1,00,000
Communication Skills for the Classroom/Teacher		Rs.1,00,000
		Rs.2,00,000
Positive Attitude and Communication		Rs.1,00,000
		Rs.1,00,000
Soft Skills	Dr.Shalini Upadyay	Rs.2,50,000
Personality Traits Assessment and Improvement		Rs.3,00,000
		Rs.2,00,000
Presentation Skills		Rs.2,00,000
Effective Public Speaking		Rs.2,50,000
Professional Communication		
<ul style="list-style-type: none"> • Executive Development Programme in Technical /Business Communication • Development of Course Contents/Material for Training/Teaching various • Components of Business English/English for Special Purposes. • Teacher Training Programme in Methods and Material Development • Negotiation Skills and Conflict Management Training Programmes in Emotional /Spiritual Quotient /Time Management.	Dr.Basavdatta Mitra	Depends on the no. of participants and the hours needed.
<ul style="list-style-type: none"> • Marketing Research in the following areas <ul style="list-style-type: none"> - Demand forecasting - Customer satisfaction/ feedback - Sales analysis - Customer research - Brand related studies • Statistical Data Analysis • Supply chain design 	Mr.VVSNVPrasad	Charges will be according to the size and complexity of the work.
Economics		

<ul style="list-style-type: none"> • Banking Products • Evaluation of Employment Guarantee Programme • Rural and Urban Development Programme • Crisis Management • Innovation Management • Industrial Relations 	Dr.Debasis Patnaik	Depends on the nature, scale & scope of work (not less than Rs.100000)
Mechanical Engineering		
Composite materials, Mechanical testing, Vibrations, FEM Analysis, Composites Processing, Thermo structural analysis	Prof B J C Babu	Depends upon the nature of the problem, Technical content
Stress/contact Stress analysis of mechanical parts, Biomechanical implants using Commercial software.	A.C.Kulkarni and D.M. Kulkarni	Rs.400/- per hour
Estimation of friction and wear performance parameters using Theoretical/numerical approaches.	A.C.Kulkarni and D.M. Kulkarni	Rs.400/- per hour
Feasibility studies on application of cellular manufacturing concepts in companies producing different product families. <ul style="list-style-type: none"> • Identification of part families for grouping into cells • Line balancing • Layout design of new factory set-ups. 	Varinder Singh	Based on quantum of work
Refresher courses on manufacturing systems concepts. Particular topics may be from the following areas <ul style="list-style-type: none"> • Lean Manufacturing • Agile Manufacturing • Reengineering 	Varinder Singh	Based on quantum of work
Modelling and Analysis of machine component using softwares: Pro-Engineers, ANSYS and LS Dyna.	D.M.Kulkarni P.M. Singru	Rs. 500 per man hr
<ul style="list-style-type: none"> • Tensile Test • Bending Test • Compressive Test • Hardness Test (Vicker's, BHN, Rockwell) • Spring Testing 	Abhishek Kumar Vikas Chaudhary A.C. Kulakarni V.P.Agrawal D.M. Kulkarni	Rs. 500/- per test (sample to be provided by the party)
• Modal Analysis of plates, shells.	P.M. Singru	Rs. 5000/- per case +

• Vibration based condition monitoring of machines	Kiran Mali	transportation
Details of Microstructure of materials: Operations includes: Sectioning, Molding, Polishing, Lapping/ super finishing, generating Micrographs and analysis of micrographs with Image analysis software.	Vikas Chaudhari	Rs. 1500/- per sample
Design of New Machines	P.M. Singru Kiran Mali	Rs. 2000/- per hour
Mathematics		
Graph Algorithms and Combinatorial Designs	Tarkeshwar Singh	Rs. 3000/- per hour
Optimization, Numerical Methods and Scientific Computing	Anil Kumar	Rs. 3000/- per hour
Modeling and Simulation, Scientific Computing and Industrial Mathematics	P. Dhanumjaya	Rs. 1000/- per hour
Numerical Analysis, Computational Partial Differential Equations, Oil Reservoir Studies and Scientific Computing.	Sarvesh Kumar	Rs. 3000/- per hour
Physics		
Design and Implementation of Confocal and Multiphoton Microscopy for Biomolecular Imaging	Dr P Nandakumar, Dr Geetha Varrier	Rs.1500/- per hour
Material Characterization by Optical and Photo Thermal Spectroscopy	Dr P Nandakumar, Dr Geetha Varrier	Rs.1500/- per hour
X Ray material Characterization for Drug Industry and Geology:	Dr Geetha Varrier, Dr Toby Joseph	Rs.1500/- per hour
Signal/Image Processing, Image Compression, Image Recovery	Dr Ashish Asgekar, Dr Radhika Vathsan	Rs.1500/- per hour
Mathematical Modelling and Computational Simulation:	Dr Mitaxi Mehta, Dr Ashish Asgekar, Dr Raghunath Ratabole, Dr P N Deepak	Rs.1500/- per hour
Scientific and Literary Word Processing	Dr Radhika Vathsan	Rs.1500/- per hour
Linux OS, Software and Server Maintenance	Dr Radhika Vathsan, Dr Ashish Asgekar	Rs.1500/- per hour
Communication Skills, Slide presentations, Animations	Dr Radhika Vathsan, Dr A V Kulkarni	Rs.1500/- per hour

Modalities of the Consultancy Contract

The detailed terms and conditions for the contracts for all above mentioned consultancy services will be finalized after discussion between the institute and the prospective client.

Contact Details

Faculty Incharge,
 Research and Consultancy and Educational Development Division (RC&EDD)
 Birla institute of Technology and Science (BITS), Pilani, Goa Campus
 Zuarinagar, 403726
 Goa, India
 E-mail rcedd@bits-go.a.ac.in
 Phone nos: 0832-2580108, 2580138
 Mobile: 09881891901

Annexure I *Ongoing Projects*

Title of Project	Name of Principal Investigator/ co-investigator	Funding Agency	Approved cost of the project (Rs. in Lakhs)	Duration/ Start Date
Hypergraphical Graphs	Dr. Tarkeswar Singh	DST	3.9	3 years/ 03/01/2005
Studies of Micro-organisms for synthesis of Nanoparticles	Dr. Meenal Kowshik	DST	8.28	3 Years/ 25/7/2006
Genetic Diversity of Polyaromatic Hydrocarbon degrading bacteria and their role in biodegradation	Dr. M. Srikanth	DST	9.96	3 years/ 20/06/2006
Novel Aza and Oxa-aza Selenamacrocycles: Synthesis, Metal complexes and anion Binding.	Dr. Arunashree Panda	DST	19.32	3 years/ 28/12/2006
Novel Biosensor techniques for monitoring heavy metals and pesticides in coastal waters and sediments	Dr. Sunil Bhand	CSIR, Dona Paula-Goa	14.47	3 years/ 06/11/2006
Preparation and characterization of nanosized TiO ₂ and studies on its photo degradation capacity of model organic pollutants.	Dr. Meenal Kowshik	DST	18.29	3 years/ 22/01/2007
Interaction of young pulsars with their plerionic supernova remnants	Dr. Ashish Asgekar	DST	2.28	3 years/ 30/04/2007
Hybrid calyx(n) hyrin (s) with pyridine moiety, new block of macrocycles as potential candidates for anion sensing and metal coordination	Dr. Iti Gupta	DST	17.4	3 years/ 25/04/2007
Studies on moulding compounds and compression moulding techniques for FRP fasteners	Dr.B.J.C. Babu	DST	21.09	2 years/ 06/07/2007
Investigations on factors affecting nuclear accumulation of DNA studied using an in-house constructed confocal microscope	Dr. Geetha Varier	DST	18.9	3 Years/ 15/10/2007
Synthesis of mesoporous silica and alumina based oxide material	Dr. N. N. Ghosh	DST	20.00	3 Years/

				03/07/2007
Preparation and characterizations of Nanoferrite powders and polybenzoxazine nanoferrite composites	Dr.N.N. Ghosh	DRDO	14.97	3 years/ 12/03/2007
Synthesis of improved Ferroelectric materials by sol-gel emulsion technique	Dr. Sutapa R. Ramanan	DRDO	14.99	3 years/ 07/05/2007
Isolation and screening of micro-organisms from Extreme and Unusual Environment for new and novel antimicrobial peptides to combat some clinically important multidrug resistant fungal pathogens	Dr. Utpal Roy	CSIR, New Delhi	14.87	3 years/ 28/04/2007
Techno-Economic Feasibility Studies on an alternative process route for removal of methanol, ammonia, and carbon dioxide from process condensate water in a fertilizer ammonia plant	Dr. Srinivas K	Ministry of Chemicals & Fertilizers	86.99	3 years/ 02/05/2007
A Parametric Study of the Proton Exchange membrane (PEM) Fuel Cell Performance	Dr. S. D. Manjare	Ministry of New & Renewable Energy New Delhi	10.47	3 Years/ 25/04/2007
Expression of cyclodextrin glucosyl transferase gene in hydrocarbon degrading bacteria for enhancing bio remediation	Dr. M. Srikanth	DBT	17.02	3 Years/ 11/10/2007
Radion contribution to various flavour changing neutral current (FCNC) processes in B-meson decay	Dr. Prasanta Das	DST	2.88	3Year s/ 2007
Synthesis and Spectral, Redox and Solid State Coordination Properties of Asymmetric and Highly Functionalised Thienyl- and Furyl-Porphyrins	Dr. Bhavana. P	DST	19.97	3 Years/ 27/02/2008
Development of Biosensors and micro-techniques for analysis of pesticide residues, aflatoxin, heavy metals and bacterial contamination in milk.	Dr. Sunil Bhand	ICAR	232.84	4.16 years/ 2008
Application of Life Cycle Assessment (LCA) to Diammonium Phosphate Plant (DAP)	Dr. S. D. Manjare	Ministry of Chemicals & Fertilizers	27.00	3 Years/ 26/02/2008
Anaerobic digestion of food waste in a horizontal plug flow reactor	Dr. M. Srikanth	UGC	10.10	3 Years/ 2008

Annexure II

Research Projects under review

Name	Title of Project	Amount (Rs.in Lakhs)	Submitted to
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Dr. Reeta Dubey	Water quality monitoring and Management using data mining	20.00	CSIR, New Delhi
Dr. Utpal Roy	Isolation and screening of micro-organisms for Micro-organisms for new and novel antimicrobial peptides to combat some selected presentday multidrug resistant human pathogens	12.00	UGC, New Delhi
Dr. Judith M. Braganca	Studies on haloarchaea producing polyhydroxyalkanoates	8.37	D.S.T.
Dr. Sutapa Roy Ramanan	Feasibility studies on Development of Corrosion Resistant Coatings on mild steel by Sol-Gel Technique.	5.05	Naval Base Karwar
Dr. Reena Cheruvath	Attitude of Technological & Engineering students towards Humanities subjects	1.20	UGC New Delhi
Dr. Neena Goveas	Study of low dimensional systems using numerical technique	2.52	D.S.T
Dr. Meenal Kowshik	Biological Synthesis of Metal Sulfide and Metallic Nanoparticles using Halophilic Archaeobacteria.	22.95	ORMD, Govt. of India,
Dr. P. Nandkumar	Studies on the optical nonlinearity of gold nanoparticle embedded BaTiO ₃ thin films.	14.94	DRDO
Dr. P. Nandkumar	Interferometric detection and micro-spectroscopy of single nanoparticles.	83.21	DST
Dr. Judith M. Braganca	Studies on haloarchaea producing polyhydroxy alkanoates	9.07	UGC
Dr. D.M. Kulkarni	Design, Analysis and Development of an Ice-Cooled air Conditioner 'Snowbreeze'	11.86	DST
Dr. P. M. Singru	"Development of NURBS Based Higher order Panel Method for Zero speed diffraction problems in Time Domain"	18.29	DST
Dr N. N Ghosh	Development and characterization of nanomaterials for biosensors and biocatalysts.	37.99	DST
Dr. P.Nandakumar	Photothermal imaging of nuclear transport	19.44	DBT
Dr. Srinivas Krishnaswamy	Experimental Investigations and comparative studies on novel and promising process/ processes technologies for syngas production and carbon capture in ammonia fertilizer plants	1372.80	Department of Fertilizers, Government of India
Dr. Utpal Roy	Screening of extremophile isolates for novel antimicrobial substances: Cloning and characterization of selected antimicrobial substances against multi-drug resistant human pathogens.	29.55	Department of Science and Technology

Annexure III

Laboratories Developed

Biological Sciences Group

- Biotechnology
- Microbiology (Includes 2 Laminar Air Flow apparatus)
- Genetic Engineering
- Measurement Techniques (Biology)

Chemical Engineering Group

- Mass Transfer
- Selected Chemical Engineering operations (SCEO)
- Heat transfer and Fluid Flow Operations (also part of mechanical engg group)
- Measurement Techniques (Chemical)
- Process Control and Reaction Engineering
- Computational Chemical Engineering

Chemistry Group

- Instrumental Methods of Analysis (include the equipment details)
- Chemistry Project
- Chemistry Special Project
- Computational Chemistry
- Measurement Techniques (Chemistry)

Computer Science & Information Systems Group

- IBM AIX Server with dB2
- Oracle Educational Version

Electrical, Electronics Engineering & Instrumentation Group

- Electronic Instruments & Instrumentation Technology
- Electrical and Electronics Measurement Techniques
- Electromechanical Energy conversion
- Digital and Analog Electronics
- Digital Communication

Languages and Personality Development Group

- Computer-aided Language

Mechanical Engineering Group

- Fluid Mechanics and Machines
- Internal Combustion Engine
- CNC & FMS
- Automation
- Thermal Science
- Material Testing
- Machine Dynamics

Physics Group

- Solid State Physics Laboratory
- Measurement Techniques (Physics)
- Optics Laboratory

Available Central Facilities

- Center for Software Development
- Computer center
- Centre for entrepreneurial development

Newly Proposed Centers

- Centre for Energy and Environmental Studies
- Centre for Embedded Technology
- Centre for Women Studies
- Centre for Nano Technology