

# Technology Resources at I<sup>2</sup>IT

## ADVANCED SOFTWARE TECHNOLOGY

- Oracle 10g
- DB2 UDB 8.2

### Application Server Technologies

- IBM WebSphere
- Oracle 10g Application Server
- JRun / Tomcat

### Application Development Technologies

- C, C++, VC++
- Java Technologies
- .Net Enterprise Framework

### Software Development Life Cycle

- Software Analysis, Design and Development
- Visual Paradigm V4.1
- Rational Suite with XDE for Java and .Net
- Rational ClearCase
- System Architect

### Software Testing

- WinRunner V7.6
- Rational Robot
- Rational Functional Tester

### Data Warehousing and Data Mining

- SAS V9
- Oracle 10g

### Extended Enterprise Solution

- SAP R3

### Enterprise Application Integration / Middleware

- TIBCO
- IBM MQ Series
- MS Host Integration Server

### Business Process Management

- TIBCO iProcess

## ADVANCED EMBEDDED SYSTEM DESIGN

- Micro Controller Based Design
- 8051 Family
- Rabbit Family
- AVR Family
- ARM Family
- Proteus-VSM Simulation Tool
- RIDE Cross Compiler
- Kyle Cross Compiler
- PC-Lint Testing Tool

### Digital Signal Processing

- C-Based Simulation Tools for DSP
- TI Family Processors (Integer and Floating Point)
- TI-OMAP Family Processors
- SPARTAN FPGA Tools

### Real Time Operating System

- u-COS
- RTLinux FSM Labs

### Smart Card Technology

- Giesecke & Devrient Development Tools

## MICROELECTRONICS AND VLSI

### IC Design Lab

- Cadence Suite
- Vericity Verification Tools

### FPGA Design Lab

- Mentor Graphics FPGA Advantage
- ALTERA Quartus II
- Xilinx WEB PACK ISE

## ADVANCED NETWORKING AND TELECOMMUNICATION

### Networking Lab

- Routers
- Cisco 2600 / 2500 / 1700 Series
- Switches
- Cisco2950 / 1900 Series
- Intrasys Switches
- D-Link Switches
- Cisco Pix Firewall: 515 Series
- Boson and RouterSim Simulators

### Telecom Lab

- Logic Analyser
- Digital Storage Oscilloscopes
- GL Communications Inc Products:
- Dual Ultra T1 / E1 Analyzer
- ISDN Analyzer
- SS7 Analyzer
- ATM Analyzer
- GSM Analyzer
- Trau Analyzer
- STM-1 (OC-3) Analyzer
- VoIP Packet Gen and Packet Scan Setup
- Protocol Application Development Tool Kit

### Wireless Lab

- Linksys Wireless-G Routers
- Linksys Wireless-G Bridges
- CDMA Demonstrator
- GSM Demonstrator
- GPS Demonstrator
- Logic Analyser
- Digital Storage Oscilloscopes
- Advanced Simulation Software's

### Optical Networks Lab

- Temperature Stabilised Optical Source Modules
- WDM Multiplexers
- Fused Fiber Couplers
- PC based Optical Power Meter
- STM-1 (OC-3) Analyser
- Fiber Termination Kit

### Network Management and Security Lab

- IP Traffic Test and measurement Software:
- ZTI Inc
- Checkpoint Safe@Office 400W series Appliances
- Cisco Pix Firewall: 515 Series

### Computer Associates Inc Lab

- CA Unicenter Network and System Management
- CA Unicenter Network Performance Option

## COMPUTATIONAL FLUID DYNAMICS

- Gambit
- Flow Lab
- Fluent

## COMPUTER ASSOCIATES LAB

### Network Management System

- CA Unicenter Network and System
- CA Unicenter Network Performance Option

### Access Control Management

- eTrust Audit
- eTrust Access Control
- eTrust Siteminder B to E

### Software Analysis and Design

- Allfusion Erwin Data Modeler

### Database Technology

- Open Ingress

## TIBCO LAB

- TIBCO BusinessWorks
- TIBCO Adapter for ActiveDatabase
- TIBCO Adapter for Files
- TIBCO Adapter for SAP
- TIBCO EMS
- TIBCO Adapter SDK
- TIBCO iProcess

## SAP LAB

- SAP R3
- SAP CRM
- SAP BW



# Advanced Lab Infrastructure at I<sup>2</sup>IT

## Lab Infrastructure for Advanced Software and Computing Technologies

### Database Technologies:

- Oracle 10g
- DB2 UDB
- SQL Server
- MySQL

### Application Server Technologies:

- IBM WebSphere
- Oracle 10g Application Server
- JRun / Tomcat

### Application Development Technologies:

- C, C++, VC++
- Java Technologies
- .Net Enterprise Framework

### Software Analysis, Design and Development:

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- SAP R3

### Enterprise Application Integration:

- TIBCO
- IBM MQ Series
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### Computer Associates Lab:

- Access Control Management
- eTrust Audit
- eTrust Access Control
- eTrust Siteminder B to E
- Software Analysis and Design
- Allfusion Erwin Data Modeler

### TIBCO LAB

- TIBCO BusinessWorks
- TIBCO Adapter for ActiveDatabase
- TIBCO Adapter for Files

## Lab Infrastructure for VLSI and Embedded System Design

### Microcontroller Evaluation and Development Kit:

- AVR STK 500
- AVR kits (AT Mega)
- AVR Emulator
- 8051 Evaluation kits
- Rabbit RCM 3720
- Rabbit RCM 2200
- ARM7TD Evaluation Board
- ARM9 Evaluation Board
- Intel Strong ARM SA 1100 Evaluation
- PC Lint Test Tools

### Digital Signal Processing:

- DSK 5510
- DSK 6711
- OMAP
- Code Compressor Studio2.1

### OS and RTOS:

- Linux
- RTLinux 2.2

### Smart Card Technology

- Giesecke & Devrient Development Tools
- Basic Card development kit
- Java Smart card Kits

### FPGA Design Tools:

- Altera Quartus II with Nios-II
- Model Sim.
- Xilinx Web Pack ISE

### DSP Programming and Testing:

- FFT / IFFT / NCO IP cores for ALTERA Devices.
- Allegro(R) PCB Design HDL - XL REL SPB 16.0

### IC/Board Design Front End and Backend Design Tools

- Incisive(TM) Unified Simulator REL IUS 6.1

- Cadence(R) SoC Encounter REL SOC 6.2
- Encounter (TM) Conformal - L (a.k.a Conformal ASIC) REL CONFRML 7.1
- Virtuoso(R) Analog Design Environment REL IC 5.1.41
- Virtuoso(R) AMS Designer Environment REL IC 6.1.0
- Encounter RTL Compiler - XL REL RC 6.2
- Cadence(R) SKILL Development Environment REL IC 6.1.0
- Assura(TM) Layout Vs. Schematic Verifier REL ASSURA3.1.6
- Incisive Enterprise Specman Elite Testbench REL SPMN 6.0
- Virtuoso(R) Analog HSPICE Interface Option REL IC 6.1.0,

## Lab Infrastructure for Advanced Networking and Telecommunications

### Networking Technologies:

- Routers:** Cisco 2600 / 2500 / 1700 Series
- Switches:** Cisco2950 / 1900 Series, Intrasys Switches, D-Link Switches, Cisco Pix Firewall: 515 Series, Boson and RouterSim Simulators

### Telecom Technologies:

- Logic Analyser
- Digital Storage Oscilloscopes
- GL Communications:** Dual Ultra T1 / E1 Analyzer, ISDN Analyzer, SS7 Analyzer, ATM Analyzer, GSM Analyzer, Trau Analyzer

### STM-1 (OC-3) Analyzer

- VoIP Packet Gen and Packet Scan Setup
- Protocol Application Development Tool Kit

### Computer Associates Inc Lab

- CA Unicenter Network and System Management
- CA Unicenter Network Performance Option

### Wireless Technologies:

- Linksys Wireless-G Routers
- Linksys Wireless-G Bridges
- CDMA Demonstrator
- GSM Demonstrator
- GPS Demonstrator
- Logic Analyser
- Digital Storage Oscilloscopes
- Advanced Simulation Software's

### Optical Networking Technologies:

- Temperature Stabilised Optical Source Modules
- WDM Multiplexers
- Fused Fiber Couplers
- PC based Optical Power Meter
- STM-1 (OC-3) Analyser
- Fiber Termination Kit

### Network Management and Security Technologies:

- IP Traffic Test and Measurement Software: ZTI Inc
- Checkpoint Safe@Office 400W series Appliances
- Cisco Pix Firewall: 515 Series

## Common Lab Infrastructure

### MATLAB 7.0

- Communications Toolbox 3.0
- Communications Blockset 3.0
- Signal Processing Toolbox 6.2
- Signal Processing Blockset 6.0
- Filter Design Toolbox 3.0
- RF Toolbox 1.0

- Neural Network Toolbar 3.0
- Fuzzy Logic Toolbar 2.1.3
- Control Systems Toolbox 6.0
- Fixed-point Toolbox 1.0
- Link For Code Composer Studio 1.3.1
- Real-time Workshop 6.0

- Embedded Target For Texas Instruments
- Filter Design HDL Coder 1.0
- Image Processing Toolbar 4.2
- Partial Differential Equation Toolbox 1.0.5
- Optimization Toolbox 3.0



# Access to Advanced Lab Infrastructure at I<sup>2</sup>IT

## Lab Infrastructure for Advanced Software and Computing Technologies

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- GSM Demonstrator
- GPS Demonstrator
- Logic Analyser
- Digital Storage Oscilloscopes
- Advanced Simulation Softwares

### Airtight® Networks Lab:

- SpectraGuard SAFE
- SpectraGuard Planner
- SpectraGuard Sensors-AP30

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- Incisive Enterprise Specman Elite Testbench REL SPMN 6.0
- Virtuoso<sup>®</sup> Analog HSPICE Interface Option REL IC 6.1.0

### Robotics:

- Mobile Robots
- SMT Stations
- 80 PTH Workbenches
- PCB Machine
- Precision Workshop
- Embedded Systems

## Lab Infrastructure for Oil and Gas Engineering

### Computational Numerical Methods:

- Ansys Fluent
- Polymath 6.1

### Petroleum Fluids:

- Distillation Apparatus
- Digital Conductivity Meter
- Abbe Refractometer
- Redwood Viscometer
- Viscosity Bath
- API & Specific Gravity Hydrometer
- Melting-Boiling Point Meter
- Precision Density Meter

- Chromatography Techniques

### Well Engineering and Testing:

- Fins Migration Mechanism
- Well Testing & Well Completion Mechanism
- Productivity Improvement Mechanism
- Drilling & Cementation Fluids

### Reservoir Performance and Simulations:

- Exodus
- Oil Field NVP Simulation Tool 1.3

## Lab Infrastructure for Computational Fluid Dynamics

### ANSYS-FLUENT:

- Fluent 6.3
- Gambit 2.3
- Tgrid 4.0

### Zeus Numerix Training Software:

- CFD Tutor

*Classrooms*



## Lab Infrastructure for Biotechnology & Bioinformatics

### Bioinformatics & Chemoinformatics Platform:

- CLC bio Combined Workbench
- Biosuite
- MatLab (Bioinformatics Toolbox)
- Sequence Assembly Suite
- Microarray Analysis Suite
- vLifeSciences MDL Suite

### Biotechnology Lab:

- Thermal Cyclers
- Sequences
- Spectrophotometer
- Refrigerated Centrifuges
- Deep Freezers
- Shakers

- Laminar Airflow Unit
- Electrophoresis Units
- Gel-doc System

### Industry Access to:

- Cell Biology and Biochemistry Lab
- Microbiology Lab
- Molecular Biology & Recombinant DNA Lab
- PCR Lab
- Bioprocess Technology Lab
- Animal Tissue Culture Lab
- Neurobiology Lab
- High Performance & Grid Computing Lab
- Support by Genome India International



## Lab Infrastructure for Nanotechnology

### Synthesis:

- High Temperature Furnaces
- Chemicals Lab
- Transferred Arc Plasma Reactor

### Characterization:

- SEM-EDX
- UV-Spectroscopy
- Photoluminescence Spectroscopy

- Ion Chromatography
- Emission Spectrometer
- Hot Stage Polarizing Microscope

### Analyzers:

- Particle Size analyzer
- O-N Analyzer
- CNHS-O Analyzer
- LF Impedance Analyzer

## Common Lab Infrastructure

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- Filter Design HDL Coder 1.0
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- Partial Differential Equation Toolbox 1.0.5
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## ACADEMICS

The School has initiated four major focus areas:

- ▶ Communications
- ▶ Culture
- ▶ Foreign Languages
- ▶ Spiritual Traditions and Cultural Heritage of India

### Communications

- ▶ Corporate Communication
- ▶ Life Skills Development
- ▶ Functional English
- ▶ Toastmasters Club
- ▶ Foreign Languages

### Culture

- ▶ Spiritual Traditions and Cultural Heritage of India
- ▶ Self Management Leadership
- ▶ Enhancement of Cognitive Abilities
- ▶ Environmental Issues and Sustainable Development
- ▶ Disaster Management and Industrial Safety
- ▶ Yoga Techniques and Meditation
- ▶ Promotion of Cultural Activities of Students

## PEDAGOGY

- ▶ Inter-active methodology and communicative approach in language teaching
- ▶ Participatory interaction of the students with professor and other fellow students
- ▶ Contrastive as well as comparative paradigms in classroom lectures on cultural anthropology, spiritual traditions and cultural heritage of India
- ▶ Individual assignments, mini projects, seminars encouraging students to work independently with critical curiosity
- ▶ Continuous as well as periodic sessional evaluation
- ▶ Tests, presentations, group discussions, mid-semester and end-semester examinations

## COLLABORATIONS

- ▶ Toastmasters International
- ▶ India International Multiversity
- ▶ Inlingua
- ▶ Max Mueller Bhavan, Pune

## FUTURE OUTLOOK

- ▶ To establish full-fledged departments of Communications, Culture Studies, Foreign Languages and Computational Linguistics
- ▶ Unfold interdisciplinary teaching and research areas with special reference to the interface between technologies, social and cultural processes
- ▶ To organize integrated cultural and social awareness programs promoting restoration and preservation of the cultural heritage of our country

## ACCOMPLISHMENTS

- ▶ DHRUVA - a students initiated journal with guest columns by well-known entrepreneurs and working professionals
- ▶ Organizing cultural and extra-mural activities

## RESEARCH AREAS

- ▶ The impact of IT on the development of languages in the age of globalization
- ▶ Interface between technology and literature
- ▶ Cultural and social displacements in the process of global migrations in modern urbanization
- ▶ Problem areas in computational linguistics and Paninian Grammar
- ▶ Philosophical insights and spiritual orientation in the complexities of the modern societies
- ▶ Pragmatics of communication

## FACULTY MEMBERS

**Prof Dr Pramod Talgeri**, Advisor

**Prof Aruna Katara**, Professor

**Prof Dr Rama Gautam**, Professor & HoD In-charge

**Ms Radhi Nair**, Sr Lecturer - Adjunct

**Ms Vaidehi Banerjee**, Lecturer

**Prof S L Bokil**, Visiting Faculty

**Prof Lesan Azadi**, Visiting Faculty

**Mr Maruti Padekar**, Visiting Faculty

**Ms Aparna Khandekar**, Visiting Faculty

**Mr Koustubh Pawar**, Visiting Faculty

## ACADEMICS

The School runs four postgraduate programs with focus on Management and Technology. These full-time Advanced Postgraduate Programs concentrate on educating, training and developing tomorrow's managers by equipping them with the knowledge base, skill sets and behavioral perspectives essential to operate successfully in the IT enabled world of the 21<sup>st</sup> Century.

## PROGRAM STRUCTURE

The School of Management offers 4 semesters, 88 credits courses in Business Management and three courses in Technology Management namely Information Technology Management, Telecom Management and Biotechnology Management. These courses are offered in collaboration with School of Information Technology and School of Biotechnology respectively. I<sup>2</sup>IT also offers an MBA Program in Oil and Gas Management which is directly offered by School of Engineering and Technology.

## PROGRAMS

- ▶ Advanced Postgraduate Program in Business Management (APGP-BM)
- ▶ Advanced Postgraduate Program in Information Technology Management (APGP-ITM)
- ▶ Advanced Postgraduate Program in Telecom Management (APGP-TCM)
- ▶ Advanced Postgraduate Program in Biotechnology Management (APGP-BTM)

## PEDAGOGY

The courses are delivered through innovative teaching techniques such as case study methods, seminars, lectures, field visits, group projects, role-playing, experiential learning and simulated exercises. The actual mix varies with the nature of the course. This requires students to play an active role in the class sessions.

## LEARNING & LAB RESOURCES

- |               |                                  |
|---------------|----------------------------------|
| ▶ Prowess     | ▶ IT Labs                        |
| ▶ Proquest    | ▶ Networking & Telecommunication |
| ▶ Digilib     | Lab                              |
| ▶ SAP-ERP Lab | ▶ Biotechnology Lab              |
| ▶ SAS Lab     |                                  |

## RESEARCH AREAS

- |  |                                       |
|--|---------------------------------------|
| ▶ Mathematics of Financial Markets         | ▶ Consumer Behavior                   |
| ▶ Indian Entrepreneurship                  | ▶ Indian Corporate and Banking Sector |
| ▶ Customer Relationship Management         | ▶ Capital Markets                     |
| ▶ Networking Behavior                      | ▶ Talent Management                   |
| ▶ International Human Resources Management | ▶ Knowledge Management                |
|  | ▶ IT Management                       |
|  | ▶ Telecom Management                  |
|  | ▶ Biotech Management                  |

## FACULTY MEMBERS

- Prof Dr Virendra Bhavsar**, *Advisor and Visiting Professor*
- Prof Narendra Sakhalkar**, *Professor*
- Prof Dr Sanjeev Panandikar**, *Professor*
- Prof Sunil Mahajan**, *Professor*
- Prof S Venkat**, *Professor - Adjunct*
- Prof Dr K S S Iyer**, *Professor - Adjunct*
- Prof Dr Satish Ratnaparkhi**, *Professor - Adjunct*
- Dr Kallol Das**, *Assistant Professor*
- Ms Raji Nair**, *Assistant Professor*
- Prof Dr Vijay Pande**, *Visiting Faculty*
- Prof Air Cmde Dr S N Bal**, *Visiting Faculty*
- Prof Wg CDR S N Parasnis**, *Visiting Faculty*
- Mr Mahendra Ramdasi**, *Visiting Faculty*
- Mr Rajesh Mudholkar**, *Visiting Faculty*
- Mr Srikanth Acharya**, *Visiting Faculty*
- Mr Ashok Kumar**, *Visiting Faculty*
- Mr Jayakumar**, *Visiting Faculty*
- Lt Col Vijay Mudkavi**, *Visiting Faculty*
- Mr Dilip Thosar**, *Visiting Faculty*
- Mr Cirvesh Daga**, *Visiting Faculty*
- Mr Vivek Date**, *Visiting Faculty*
- Mr J P Singh**, *Visiting Faculty*
- Mr Sudhindra Mujumdar**, *Visiting Faculty*



## ACADEMICS

The School will be running 7 academic programs broadly grouped into two domains namely Applied Nanoscience and Applied Intelligent Systems. These autonomous, four semester, 24-month, 88 credits, full time, Advanced Postgraduate Programs are designed to create an opportunity for the students to establish an international research career.

## PROGRAM STRUCTURE

The courses have been structured in a unique way to provide students with ample freedom to pursue focused research in their respective fields.

- ▶ Successful completion requires 88 credits
- ▶ To bridge the gap between theory and experimental research, thesis of 38 credits to be completed in the second year
- ▶ The program is distributed over four semesters. First two semesters are academic sessions and the third and fourth semesters are dedicated solely for research
- ▶ The entire curriculum is distributed over six levels to aim at transcending the student's level of preparation to take up hardcore research. The levels are respectively- Bridge, Foundation, Core, Advanced, Electives and Thesis
- ▶ Students are required to take one elective from the list of elective courses

## PROGRAMS

### Applied Nanoscience

- ▶ Advanced Postgraduate Program in Nanoscience & Nanotechnology
- ▶ Advanced Postgraduate Program in Nanoelectronics
- ▶ Advanced Postgraduate Program in Nanobiotechnology
- ▶ Advanced Postgraduate Program in Nano, Bio, Info and Cogno (NBIC) Convergence Technology

### Applied Intelligent Systems

- ▶ Advanced Postgraduate Program in Intelligent Systems & Robotics
- ▶ Advanced Postgraduate Program in Intelligent Transportation Systems (Focusing on Intelligent Alternative Vehicles)
- ▶ Advanced Postgraduate Program in Satellite Communication & Space Systems

## PEDAGOGY

All the courses are designed to address theoretical foundation, practical relevance and research methodology. To achieve that, courses will be delivered using learning by exploration, learning by doing, learning by discovery and collaborative learning process through classroom lectures, laboratory sessions, assignments, student seminars, lectures by researchers and industry experts, case studies, relevant industry visits and research/industry projects. Academic programs will be suitably configured depending on students and staff research interests.

## PROFESSIONAL MEMBERSHIPS

- ▶ IEEE Professional Societies
- ▶ VLSI Society of India
- ▶ Indian Society for Technical Education
- ▶ Indian Microelectronics Society
- ▶ International Association of Nanotechnology

## FUTURE OUTLOOK

- ▶ Adding new research areas in emerging areas of Science and Technology
- ▶ Initiation of interdisciplinary research across six Schools of I<sup>2</sup>IT
- ▶ Collaboration with relevant national labs to pursue academic & research programs in NT, BT, IT and CT
- ▶ Establish a lab for brain-computer interface research and studies in mind, consciousness and cognition

## ACCOMPLISHMENTS

- ▶ Workshop on 'Embedded System and VLSI Design in Robotics' held every February and September of an academic year
- ▶ Summer training on 'Robotics', held every June of the academic year
- ▶ Four-day workshop on 'Robotics and Nanotechnology' in association with many undergraduate engineering colleges across India. 5000 students have been trained so far

## LEARNING & LAB RESOURCES

- |                               |   |
|-------------------------------|---|
| ▶ Nanomaterials Lab           | ▶ Nanobiotech Lab   |
| ▶ Robotics Lab                | ▶ Space   |
| ▶ Automotive / Automation Lab | ▶ Communication Lab   |
| ▶ Physical Computing Lab      | The School has an exclusive library with a reference section across the disciplines and journals as per the interdisciplinary nature. |
| ▶ Device Modeling Lab         |   |
| ▶ Device Fabrication Lab      |   |
| ▶ Cognitive Lab               |   |

## RESEARCH AREAS

- |                             |                                    |
|-----------------------------|------------------------------------|
| <b>Applied Nanoscience</b>  | <b>Applied Intelligent Systems</b> |
| ▶ Nanoelectronics           | ▶ Intelligent Vehicles             |
| ▶ Nanobiotechnology         | ▶ Robotics                         |
| ▶ Nanofabrication           | ▶ Micro Satellites                 |
| ▶ Cognitive Engineering     | ▶ RF System                        |
| ▶ Convergence of Technology | ▶ Alternative Vehicles             |
| ▶ Unification of Science    |                                    |

## FACULTY MEMBERS

Prof Dr Vijay P Bhatkar, *Chief Mentor*  
 Prof Rabinder Henry J, *Associate Professor*  
 Mr Amit Patwardhan, *Lecturer*  
 Prof Dr G K Rajan, *Visiting Faculty*  
 Dr Dinesh Amalnerkar, *Visiting Faculty*  
 Mr Manish Shinde, *Visiting Faculty*  
 + faculty members from other schools

## ACADEMICS

The School offers two Advanced Postgraduate Programs in Biotechnology and Bioinformatics. These autonomous, four semester, 24-month, 88/89 credit, full-time programs are crafted to develop tomorrow's leaders in Biotechnology and Bioinformatics who can take up the challenges of the 21<sup>st</sup> Century biology. The program strongly focuses on experimental as well as the theoretical aspects of various fields providing ample scope for students to pursue research in different domains of future. The School has flexible inter and multi-disciplinary approach providing opportunities to students for innovations and beyond.

## PROGRAM STRUCTURE

- ▶ The entire curriculum is distributed over seven levels to aim at transcending the student's level of understanding for corporate readiness. The levels are respectively - Bridge, Common, Foundation, Core, Advanced, Electives and Project
- ▶ The project has 32 credits which are used by students to implement the learning and showcase their skills
- ▶ To be eligible for Advanced Postgraduate Program in Bioinformatics, a student has to take minimum subjects worth 88 credits out of 97 credits
- ▶ Each student will undergo an assessment test to ascertain what bridge course a student needs to enroll for

## PROGRAMS

- ▶ Advanced Postgraduate Program in Biotechnology
- ▶ Advanced Postgraduate Program in Bioinformatics
- ▶ Advanced Postgraduate Program in Biotechnology Management (in collaboration with SoMT)

## PEDAGOGY

All courses are designed to address theoretical foundation, practical relevance and the real life problem solving. To achieve this, the courses will be delivered using collaborative learning process through classroom lectures, laboratory sessions, assignments, student seminars, mini projects and lectures by industry experts, case studies, relevant industry visits and major research / industry projects.

## COLLABORATIONS

- ▶ Active academic collaboration with Genome India International - an international society of Indian scientists from all over the globe
- ▶ Industry collaboration with vLife Science, Pune in the area of Chemoinformatics

## ACCOMPLISHMENTS

- ▶ Short-term training program in Bioinformatics
- ▶ Seminar on Career Opportunities in Biotechnology

## LEARNING & LAB RESOURCES

<b>Biotechnology</b>	<b>Bioinformatics</b>
▶ Thermal Cyclers	▶ CLC Bio Workbench Suite
▶ Spectrophotometers	▶ Biosuite
▶ High-Speed Centrifuges	▶ Sequence Assembly Suite
▶ Deep Freezers	▶ Microarray Analysis Suite
▶ Shakers	▶ Vlife Sciences MDL Suite
▶ Laminar Flow Units	
▶ Electrophoresis Units	
▶ Gel-Doc System	

## RESEARCH AREAS

<b>Biotechnology</b>	<b>Bioinformatics</b>
▶ Tissue Culture	▶ Microarrays
▶ Bio-pharmaceuticals	▶ Functional and Comparative Genomics / Proteomics
▶ Bio-nanotechnology	▶ Genome Informatics
▶ Environmental Biotechnology	▶ Computational Biology
▶ Plant Biotechnology	▶ Neuroinformatics
▶ Bio-process Technology	▶ Biological Database Design and Data Mining

## FACULTY MEMBERS

**Prof Dr Uday Deshpande**, *Professor & HoD*  
**Prof Dr Nitin Kulkarni**, *Associate Professor*  
**Prof Dr Prashant Khadke**, *Associate Professor*  
**Mr Suhaschandra Doke**, *Assistant Professor*  
**Ms Ragini Deshpande**, *Senior Lecturer*  
**Dr P K Ranjekar**, *Visiting Faculty*  
**Prof Dr Sameer Roy Choudhary**, *Visiting Faculty*  
**Mr Mohd Laeeq Siddique**, *Visiting Faculty*  
**Ms Suruchi Gaurav Dedgaonkar**, *Project Assistant*

## LEARNING & LAB RESOURCES

### FPGA Design Tools:

- ▶ Altera Quartus II with Nios-II
- ▶ Model Sim
- ▶ Xilinx Web Pack ISE

### DSP Programming and Testing:

- ▶ FFT /IFFT / NCO IP Cores for ALTERA Devices

### IC / Board Design Front End and Backend Design Tools:

- ▶ Incisive(TM) Unified Simulator REL IUS 6.1
- ▶ Cadence(R) SoC Encounter REL SOC 6.2
- ▶ Encounter(TM) Conformal - L (a.k.a Conformal ASIC) REL CONFRML 7.1

- ▶ Virtuoso(R) Analog Design Environment REL IC 5.1.41
- ▶ Virtuoso(R) AMS Designer Environment REL IC 6.1.0
- ▶ Encounter RTL Compiler - XL REL RC 6.2
- ▶ Cadence(R) SKILL Development Environment REL IC 6.1.0
- ▶ Assura(TM) Layout Vs. Schematic Verifier REL ASSURA3.1.6
- ▶ Incisive Enterprise Specman Elite Testbench REL SPMN 6.0
- ▶ Virtuoso(R) Analog HSPICE Interface Option REL IC 6.1.0
- ▶ Allegro(R) PCB Design HDL XL

## COLLABORATIONS

- ▶ CADENCE
- ▶ ALTERA
- ▶ CEERI Pilani and other national laboratories
- ▶

## RECRUITMENT PARTNERS

INTEL, IBM, CADENCE, ALTERA, WIPRO,

ST Microelectronics, HCL, Freescale Semiconductors, MAGMA, Open Silicon Interface

## PROFESSIONAL MEMBERSHIPS

- ▶ India Semiconductor Association
- ▶ VLSI Society of India

## ACCOMPLISHMENTS

- ▶ Five Projects short-listed in top 15 at CADENCE Design Contest
- ▶ Industry funded research projects
- ▶ Conducted Workshop on 'Design and Verification Methodologies' in association with VLSI Society of India and Wipro Technologies
- ▶ Published more than 35 papers in national / international level conferences including 10 in IEEE conferences

## FACULTY MEMBERS

**Prof Manish Patil**, *Professor & HoD*  
**Dr Sharmila Kurkure**, *Assistant Professor - Adjunct*  
**Ms Sheetal Bhandari**, *Senior Lecturer*  
**Ms Rohita Jagdale**, *Senior Technical Engineer*  
**Ms Jayashri Patil**, *Lecturer*  
**Mr Ketan Raut**, *Lecturer*  
**Prof Dr Dipankar Nagchoudhuri**, *Visiting Faculty*  
**Prof Dr Shaila Subbaraman**, *Visiting Faculty*  
**Dr Gola Eranna**, *Visiting Faculty*  
**Dr S C Bose**, *Visiting Faculty*  
**Ms Rashmi Mahajan**, *Research Assistant*

## LEARNING & LAB RESOURCES

### Microcontroller Evaluation and Development Kit:

- ▶ AVR STK 500
- ▶ AVR kits (AT Mega)
- ▶ AVR Emulator
- ▶ 8051 Evaluation kits
- ▶ Rabbit RCM 3720
- ▶ Rabbit RCM 2200
- ▶ ARM7TD Evaluation Board
- ▶ ARM9 Evaluation Board
- ▶ Intel Strong ARM SA 1100 Evaluation
- ▶ PC Lint Test Tools

### Digital Signal Processing:

- ▶ DSK 5510

- ▶ DSK 6711
- ▶ DSK 6413
- ▶ OMAP
- ▶ Code Compressor Studio2.1

### OS and RTOS:

- ▶ Linux
- ▶ RTLinux 2.2

### Smart Card Technology:

- ▶ Giesecke & Devrient Development Tools
- ▶ Basic Card Development Kit
- ▶ Java Smart Card Kits

## RECRUITMENT PARTNERS

- ▶ Wipro
- ▶ HCL
- ▶ PCS
- ▶ TCS
- ▶ IBM
- ▶ INTEL
- ▶ John Deere
- ▶ Siemens
- ▶ KPIT Cummins
- ▶ Tata Elxsi
- ▶ Crompton Greaves
- ▶ T.V.S InfoTech
- ▶ Mind tree
- ▶ TIFR
- ▶ PHILIPS
- ▶ Giesecke & Devrient, Germany
- ▶ Conexant
- ▶ SoftDel
- ▶ Encodex Technologies
- ▶ Spartan Labs
- ▶ Imagination Technologies
- ▶ Info Innovative Technologies Pvt. Chennai
- ▶ Spectra Smart Solutions
- ▶ Magna Steyr
- ▶ Pixen, Chennai
- ▶ Robert Bosch Bangalore
- ▶ ARICENT, Noida
- ▶ Schneider Electric, Bangalore
- ▶ Papyrus Software, Hyderabad
- ▶ Ingersoll Rand, Pune
- ▶ VMWARE, Bangalore

## ACCOMPLISHMENTS

- ▶ Consultancy - Theta Control, C-DAC
- ▶ Conference / Workshop conducted – NCECube07, Technological Challenges in Embedded Software Testing, Cypress on PSOC, Freescale in Automotive, National Instrument on Lab View
- ▶ Invited Guest Lectures - J&D, G&D, Whirlpool, Honeywell, NASA alumnus
- ▶ 2 patents and 1 trademark
- ▶ 1 Ph.D registration, 3 MS (by Research) Thesis
- ▶ 30 papers have been published in national / international conferences

## FACULTY MEMBERS

- Prof Shashank Pujari**, *Professor & HoD*  
**Prof Dr Subrata Ghoshal**, *Professor*  
**Prof Dr Srikanth Thiagarajan**, *Professor*  
**Prof Nitin Narappanawar**, *Professor - Adjunct*  
**Prof Vardhaman Tiwatane**, *Associate Professor*  
**Mr S M Mahalakshmi Naidu**, *Senior Lecturer*  
**Ms Priya Sawant**, *Senior Lecturer - Adjunct*  
**Mr Raghav Ankur**, *Senior Research Assistant*  
**Mr Madhusudan Rao**, *Sr Research Assistant*

## LEARNING & LAB RESOURCES

### Networking Technologies:

#### Routers:

Cisco Routers

#### Switches:

Cisco Switches, Intrasys Switches, D-Link Switches

#### Cisco Pix Firewall:

515 Series, Boson Simulator, RouterSim Simulator

### Telecom Technologies:

Logic Analyzer, Digital Storage Oscilloscopes, GL Communications: Dual Ultra T1 / E1 Analyzer, ISDN Analyzer, SS7 Analyzer, ATM Analyzer, GSM Analyzer, Trau Analyzer, STM-1 (OC-3) Analyzer, VoIP Packet Gen and Packet Scan Setup, Protocol Application Development Tool Kit

### Computer Associates Inc Lab:

CA Unicenter Network and System Management, CA Unicenter Network Performance Option

### Wireless Technologies:

Linksys Wireless-G Routers, Linksys Wireless-G Bridges, CDMA Demonstrator, GSM Demonstrator, GPS Demonstrator, Logic Analyser, Digital Storage Oscilloscopes, Advanced Simulation Softwares

### Optical Networking Technologies:

Temperature Stabilised Optical Source Modules, WDM Multiplexers, Fused Fiber Couplers, PC based Optical Power Meter, STM-1 (OC-3) Analyser, Fiber Termination Kit

### Network Management and Security Technologies:

IP Traffic Test and Measurement Software: ZTI Inc, Checkpoint Safe@Office 400W Series Appliances, Cisco Pix Firewall: 515 Series

## COLLABORATIONS

- ▶ ICTP, Italy
- ▶ Sun Yat-Sen University, China
- ▶ Computer Associates Inc
- ▶ Nokia-Siemens Networks
- ▶ Airtight Networks
- ▶ EMC<sup>2</sup>

## CAREER OPPORTUNITIES

- ▶ Telecom Software Developer
- ▶ Network Node Manager
- ▶ Architect / Developer (Wireless, IP Applications, Routing Protocols and Algorithms)
- ▶ System Administrator
- ▶ Network Security Architect
- ▶ SQA Engineer
- ▶ Enterprise Manager

## ACCOMPLISHMENTS

- ▶ Awards won by our Alumni: AVAYA Lab Cup Quality Award, AVAYA Rising Star Award, IXIA Master Award, Best Recruit Award of WIPRO
- ▶ Information & Network Security Workshop
- ▶ Advances in Wireless Technologies Workshop
- ▶ SIP enabled IMS application Development Workshop
- ▶ Workshops on Advances in Advanced Networking Technologies
- ▶ Workshop on Wireless Technologies for South Asian Countries
- ▶ National Seminar on Emerging Wireless Technologies
- ▶ 30+ papers published by Faculty and Students during last two years

## FACULTY MEMBERS

**Prof Dr Bharat S Chaudhari**, *Dean - Academics, Professor & HoD*

**Prof Ravindra Joshi**, *Professor*

**Prof Dr Balaram Saha**, *Professor - Adjunct*

**Ms Sahana Bhosale**, *Assistant Professor*

**Mr R H Goudar**, *Senior Lecturer*

**Mr Nilesh Deshmukh**, *Lecturer*

**Ms Shraddha Kakatkar**, *Lecturer*

**Prof Dr Radhika Menon**, *Visiting Faculty*

**Mr Cirvesh Daga**, *Visiting Faculty*

**Ms Poonam Mehta**, *Research Assistant*

## LEARNING & LAB RESOURCES

- ▶ A complete Lab equipped with 200 computers with relevant software
- ▶ Database Technologies like Oracle 10g, Db2 UDB 8.2, MySQL
- ▶ Application Server Technologies like IBM WebSphere, Oracle 10g Application Server, JRun / Tomcat
- ▶ Application Development Technologies like C, C++, VC++, Java Technologies, .Net Enterprise Framework
- ▶ Software Analysis Design & Development tools like Visual Paradigm V4.1, Rational Suite XDE, Rational ClearCase, System Architect
- ▶ Software Testing tools like WinRunner V7.6, Rational Robot, Rational Functional Tester
- ▶ Data Warehousing and Data Mining tools like SAS V9, Oracle 10g
- ▶ Extended Enterprise Solution like SAP R3
- ▶ Enterprise Application Integration / Middleware - TIBCO, IBM MQ Series, MS Host Integration Server
- ▶ TIBCO LAB (Collaboration with TIBCO Inc.) has TIBCO Active Metrics BusinessWorks, TIBCO Adapter for Active Database and Files
- ▶ Intel Lab
- ▶ MAT Lab

## COLLABORATIONS

### Academic:

Russian India Center for Computing Research, Russia | Information & Communication University, Korea | CCITT and Hunan University, China | ESEO, France | EPITECH, France | Cleveland State University, USA | NTU, Singapore | NDSU, USA

### Industry:

SAS Institute | SAP | TIBCO Software | Intel | Computer Associates | Wipro Technologies | Computational Research Laboratories (CRL)

## PROFESSIONAL MEMBERSHIPS

PMI | NASSCOM | International Function Points User Group (IFPUG)

## ACCOMPLISHMENTS

### Projects and Consultancy

- ▶ Health Demographic Surveillance System (HDSS) for Vadu and Adjoining Villages
- ▶ Research and Information Management for KEM Hospital and Research Center, Pune
- ▶ Developed centralized database for three countries research centers- Vadu (India), Kanchanaburi (Thailand) and Wosera (Papua New Guinea)

### Higher Education at International Universities

The Department is proud of its students who are pursuing higher studies at international Universities like Cleveland State University, Ohio and are registered for their Ph.D with North Dakota State University (NDSU), Fargo

### Seminars/ Conferences Organized

- ▶ One day event 'ConerStone - Study Circle' in collaboration with NASSCOM on 'Software as a Service (SaaS)'
- ▶ Three-day national Seminar on 'Parallelism - Impact of Multicore and Latest Trends' in collaboration with Intel @ India

## FACULTY MEMBERS

**Prof Dr Atanu Rakshit**, *Dy Director & Dean*  
**Prof Dr Rahul Athale**, *Professor, HoD and Controller of Examinations*  
**Prof Dr Virendra Bhavsar**, *Professor*  
**Prof Dr Urvashi Rathod**, *Professor - Adjunct*  
**Prof Tathagata Bhattacharjee**, *Associate Professor*  
**Prof Prasad Joshi**, *Associate Professor*  
**Mr S S Suresh**, *Assistant Professor*  
**Mr Anil Dudhe**, *Senior Lecturer*  
**Ms Preeti Nigam**, *Senior Lecturer - Adjunct*  
**Mr Nikhil Randive**, *Lecturer - Adjunct*  
**Mr Varun Bhatnagar**, *Lecturer - Adjunct*  
**Ms Pallavi Deshmukh**, *Lecturer - Adjunct*  
**Prof Dr S S Kadam**, *Visiting Faculty*  
**Mr Ashok Kumar**, *Visiting Faculty*  
**Mr Mahendra Ramdasi**, *Visiting Faculty*  
**Mr Mohan Rao**, *Visiting Faculty*  
**Mr Rajiv Ranjan**, *Sr Research Assistant*  
**Ms Anagha Komawar**, *Sr Research Assistant*  
**Mr Harish Ingle**, *Research Assistant*  
**Ms Sonal Watane**, *Research Assistant*  
**Mr Jossy Sebastian**, *Research Assistant*  
**Ms Nidhi Patharia**, *Research Assistant*  
**Mr Balachandra Reddy**, *Research Assistant*  
**Mr Alpesh Virani**, *Research Assistant*

### INTERNATIONAL ACADEMIC EXCHANGE PROGRAM

The Department of Computational Fluid Dynamics has academic collaboration for students and faculty exchange programs with Russian Indian Centre for Computing Research (RICCR) [www.riccr.com](http://www.riccr.com), an organization working under Institute of Computer Aided Design (ICAD), Russian Academy of Sciences and with Lomonosov Moscow State University ([www.msu.ru](http://www.msu.ru)).

The Department of Oil & Gas Engineering and Management has academic alliances for students exchange program with Gubkin Russian State University of Oil and Gas, Moscow, Russia ([www.gubkin.ru](http://www.gubkin.ru)).

### INDUSTRY COLLABORATIONS

- ▶ ANSYS-FLUENT
  - ▶ ZEUS NUMERIX
- (refer to Incubation Center for further information)

### ADMISSION

The selection of an applicant for the course is based on the following:

- ▶ Application forms shall be scrutinized in line with the eligibility criteria
- ▶ Marks received at the Graduation level like BE / B Tech / MCA / MSc, etc
- ▶ Personal Interview

### PLACEMENT ASSISTANCE

- ▶ Career guidance at the institute
- ▶ Pre-placement facilitation / development and Campus Interview by leading Industries
- ▶ Active interface with the core and allied companies

### PLACEMENT

The students of these Programs have been successfully placed in the top-notch companies such as:

Fluent India Limited | Applied Thermal Technologies India | General Motors R & D | Quest | Partial Derivatives | AVL | Hindalco Industries | Cummins India | Flomerics India | Reliance India | Zeus Numerix | Mechertes | WhirlPool | GE | Aditya Birla Cement | Infotech | Fludyn | Willo | Delphi Electronics | Shiv-Vani

### LEARNING & LAB RESOURCES

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>▶ Upcoming exclusive laboratory for CFD / Oil &amp; Gas Engineering</li> <li>▶ Server based ANSYS-FLUENT software</li> <li>▶ IIT Online Learning</li> </ul> | <p>Center with a Digital Library, a Test Center, a Peer Chat and a Bulletin Board for academic collaboration</p> |
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### FACULTY MEMBERS

**Prof Dr Keshao L Asanare**, *Advisor*  
**Prof Dr Samir Das**, *Professor & HoD*  
**Prof Pankaj Roy Gupta**, *Professor*  
**Prof Anil Deshmukh**, *Professor*  
**Mr Rajesh Kherde**, *Assistant Professor*  
**Mr Makarand Upkare**, *Assistant Professor*  
**Mr Kiran Wani**, *Senior Lecturer*  
**Prof Dr Ashok Deshpande**, *Visiting Faculty*  
**Prof Dr L K Kshirsagar**, *Visiting Faculty*  
**Prof Dr S S Kadam**, *Visiting Faculty*  
**Prof Dr A R Srikrishnan**, *Visiting Faculty*  
**Mr P D Sabale**, *Visiting Faculty*  
**Mr Subhamoy Ghosh**, *Visiting Faculty*  
**Mr Somnath Nandi**, *Visiting Faculty*  
**Mr Pravin Nakod**, *Visiting Faculty*  
**Mr D M Salunke**, *Visiting Faculty*  
**Mr Rakesh Yadav**, *Visiting Faculty*

### ACCOMPLISHMENTS

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>▶ Conducted Indo-Russian Workshop on 'High Energy Density Physics for Innovative Technologies and Industry Applications'</li> </ul> | <ul style="list-style-type: none"> <li>▶ Conducted SONIC 06, SONIC 07 and OGTech 08</li> </ul> |
|--|--|