Leveraging
the new age
Perspectives

Annual Report 2015-16
FROM THE DIRECTOR

IIT Hyderabad

MARCHING AHEAD

If you can dream it, you can do it.

– Walt Disney

Designing the Future
In November 2016 IIT Hyderabad has 2069 students and 170 full time faculty. Of the 2069 students, more than half are post graduates; 614 Ph.D. and 477 M.Tech., M.Phil. and M.Des., and the rest 978 are undergraduates. IITH has 14 academic departments covering all areas of engineering, sciences, liberal arts and design; it has a virtual department referred to as Engineering Science -- a very novel concept. In Aug 2016, IITH graduated a total of 449 students, of which 42 were Ph.Ds.

Faculty and students of IITH are at the forefront of innovations: Academic innovations, and innovative research. IITH has had 1431 publications, 35 patents filed, and nearly 300 sponsored projects and consultancy projects. Nearly 80% faculty have funded projects. Moreover, IITH has strong industry collaboration – we collaborate with nearly 50 industries. IITH has nearly 250 crs in sanctioned research funding and nearly 15 crs of industrial research and consultancy. IITH has 115 laboratories for teaching, teaching plus research, and for only research. IITH has 9 research and entrepreneurship centers. IITH has MoUs with 40 universities in the USA, Japan, Australia, and Europe.

On the academic front also, IITH is surging ahead: We have B.Tech. programs in eight engineering departments, MSc in Physics, Chemistry and Math, M.Phil. in Liberal Arts, M.Des. in Design, and Ph.D. in all 13 departments. There is strong emphasis on interdisciplinary academics. IITH has implemented a very novel academic program, referred to as, Fractal Academics – the key idea is to atomize courses, provide breadth and depth, emphasize courses in liberal arts as well as creative arts, emphasize project work, and create an interactive learning ambience. In this approach the students will be well equipped to handle challenges of any job or challenges of post graduate education. IITH offers a Minor in Entrepreneurship to all students. Form last year a double major is available to all B.Tech. students – i.e., a hardworking and enthusiastic student can get two B.Tech degrees. Students at IITH can enrich their knowledge by opting for a minor and/or an honors program. IITH is the only institution to offer DigiFab (3D-printing) to all first year students.

IITH is the first institute to start an executive M.Tech. program in Data Science for working professionals.

IITH has very active collaboration with Japan, and this collaboration is on all fronts – research, academics and infrastructure development. This is a unique collaboration which is helping propel IITH to be among the best in the world. At the infrastructure level, besides several academic buildings, Japanese architects have designed iconic structure to reflect the friendship between Japan and IIT Hyderabad – these are – Knowledge Center (library), Technology Incubation and Research Park, Convention Village, Guest House and Sports and Cultural Complex. As part of the Friendship Program, IITH and Japanese Universities have a very active student and faculty exchange program.

IITH has launched its technology business incubator and six companies have been incubated.

IITH has had several visiting faculty from Japan, USA, France, and Canada who taught fractional credit courses or regular courses.

IITH is creating a unique holistic educational ecosystem that offers interactive learning, a highly, flexible academic structure, cutting edge research, strong industry collaboration, and entrepreneurship. It is providing an environment wherein students and faculty are not afraid to experiment and celebrate their ideas.

Prof UB Desai
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Indian Institute of Technology Hyderabad
Although started in 2008, IITH started hiring faculty in late 2009. By the end of 2015-16 IITH had 154 faculty members spread across 13 academic departments. The rapid growth of IITH had attracted applicants with excellent academic and research record. In most of the departments 2 selections are done per year for regular posts. However, most of the hiring have been at the level of Assistant Professors. 77% of the faculty members do possess extensive post-doctoral experience. The following charts show the distribution and experience of faculty members in various departments.
IIT Hyderabad started functioning in the year 2008 with 3 B.Tech programs; Computer Science and Engineering, Electrical Engineering, and Mechanical Engineering. Each of these programs had an intake of 40 students through JEE. In 2009 IITH started admitting Ph.D students in various departments and in 2010 almost all engineering departments started offering M.Tech programs. M.Sc programs started in the year 2010 with Chemistry Department and in the subsequent years, Physics and Mathematics departments started their M.Sc programs. M.Phil program was also stated in the year 2012 by the Liberal Arts department and M.Des program was started in the year 2014 by the Department of Design. Today IITH offers 8 B.Tech programs, 16 M.Tech programs, 3 M.Sc programs, 1 M.Des program, 5 M.Phil programs and Ph.D program in all branches of engineering, humanities, social science and arts. In addition to the regular M.Tech program, the department of computer science and engineering also started an executive M.Tech program for industry folks.
ACADEMICS

**Total number of M.Sc students admitted in each academic year**

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>7</td>
</tr>
<tr>
<td>2015</td>
<td>22</td>
</tr>
</tbody>
</table>

**Total number of Ph.D students admitted in each academic year**

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>10</td>
</tr>
<tr>
<td>2015</td>
<td>22</td>
</tr>
</tbody>
</table>

**Department-wise distribution of total students**

- CY
- MA
- PH

**M.Sc.**

**M.Des**

<table>
<thead>
<tr>
<th>Design</th>
<th>No. of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>No. of Students</td>
</tr>
<tr>
<td>2012</td>
<td>7</td>
</tr>
<tr>
<td>2013</td>
<td>4</td>
</tr>
<tr>
<td>2014</td>
<td>4</td>
</tr>
<tr>
<td>2015</td>
<td>9</td>
</tr>
</tbody>
</table>

**Ph.D**

<table>
<thead>
<tr>
<th>Department</th>
<th>No. of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>BM</td>
<td>4</td>
</tr>
<tr>
<td>BT</td>
<td>5</td>
</tr>
<tr>
<td>CH</td>
<td>5</td>
</tr>
<tr>
<td>CSE</td>
<td>4</td>
</tr>
<tr>
<td>CE</td>
<td>3</td>
</tr>
<tr>
<td>CY</td>
<td>2</td>
</tr>
<tr>
<td>EE</td>
<td>1</td>
</tr>
<tr>
<td>LA</td>
<td>3</td>
</tr>
<tr>
<td>MA</td>
<td>4</td>
</tr>
<tr>
<td>MAE</td>
<td>5</td>
</tr>
<tr>
<td>MSME</td>
<td>4</td>
</tr>
<tr>
<td>PH</td>
<td>4</td>
</tr>
<tr>
<td>DN</td>
<td>3</td>
</tr>
</tbody>
</table>
The vibrant research culture in IITH is evident from the large number of publications and the sponsored projects. By the end of 2015-16 IITH had more than 100 sponsored projects funded by national funding agencies and private companies. The trends in sponsored projects in IITH over the last 8 years are shown in the charts below.

**RESEARCH PROJECTS**

No of Sponsored Research Projects Approved in Each Financial Year

Funding from Sponsored Research Projects

**CONSULTANCY PROJECTS**

No of Consultancy Projects Approved in Each Financial Year

Funding from Consultancy Projects

**R&D**

Publications

International co-authorship
FIRST TIME IMPLEMENTATIONS

Though IITH is relatively young, some of the academic innovations implemented at IITH is first of its kind in Indian academic circle. Some of them are briefed below.

Fractal academics: The fractal academics implemented at IITH is first of its kind academic program. The program builds up on the concept of atomization of courses. This novel academic program exposes the students to some of the basic and advanced topics in the early semesters, creating the passion and excitement to dig deeper into the subjects. More about the fractal program at IITH may be found from https://www.iith.ac.in/fractal/frac.html

- **Digital fabrication lab**: The digital fabrication lab (3D printing) at IITH is offered to the first semester students. In this lab the students make 3D CAD models, which are then translated into the real world object with the help of a 3D printer. IITH is the only institution offering 3D printing to the first semester students.

- **Executive M.Tech program**: The department of computer science and engineering at IITH offers executive M.Tech program in Data Sciences exclusively for working professionals. The program is self-paced and the individuals do have the flexibility to complete the course in 2-4 years of duration.

  - **Minor in entrepreneurship**: The minor program in entrepreneurship offered by IITH for its graduate and undergraduate students is a highly sought after program in the institute. The courses are offered by individuals from industry who themselves are entrepreneurs.

  - **Double Major**: The senate of IITH has approved the double major program, in which an undergraduate student is given the opportunity to obtain two B.Tech degrees by completing extra credits from other engineering branches.

  - **Creative arts series**: IITH offer a large number of creative arts (CA) courses, some of them offered by practicing professionals for its students. The CA courses are mandatory to the undergraduate students for the successful completion of a B.Tech degree.

Inauguration of CENTRE FOR HEALTHCARE ENTREPRENEURSHIP

With the objective of Biomedical innovation to cater to the needs of India’s less advantaged, IITH has started an interdisciplinary Center for Healthcare Entrepreneurship (CHE). The center’s vision is to achieve healthcare for all and to make universal healthcare a reality. The center will strive to produce a sustainable stream of entrepreneurs and products in the biomedical space.

The CHE also offers a fellowship program in healthcare entrepreneurship. The objective of the fellowship program is to identify and nurture potential entrepreneurs to come up with innovative solutions and products that will be a paradigm shift in rural healthcare. The program is mentored by an international team comprising entrepreneurs, industrialists, and leading academicians from India and USA. The fellows will also be given the opportunity to incubate at IITH’s incubation facility; giving them access to the technological expertise at IITH.

Shri KT Rama Rao, Hon’ble Minister for IT, Industries, MA&UD, NRI Affairs of Telangana inaugurates the Centre for Healthcare Entrepreneurship
TEACHING LEARNING CENTER (TLC)

Teaching learning centre (TLC) at IIT Hyderabad was established in January 2016 under the Pandit Madam Mohan Malviya National Mission for Teaching and Training (PMMNMNTT), a scheme by MHRD. The vision of TLC at IITH is to create an effective education ecosystem (3E). The aim is to facilitate learning in teaching to provide an academic environment which can enable the 21st century students to discover, invent, create, innovate and develop. TLC supports the IITH faculty in content development of novel courses and effective dissemination. A repository of teaching aids and toys is maintained at TLC which are made available to faculty as per requirements. The content developed is made public for the benefit of larger community.

IIT Hyderabad has a two pronged strategy for effective teacher training. General workshops are conducted for faculty in various schools/colleges across the country. In parallel, individual colleges are identified and department wise training is imparted. So far over 600 teachers from other engineering colleges have been trained in various subjects. TLC has also organised a workshop in close collaboration with Telangana academy for skill and knowledge, Govt of Telangana.

TLC is also undertaking renovation of a few classrooms at IITH to create smart classrooms to facilitate virtual classrooms and other disruptive teaching practices. TLC is also keenly extending support to IIT Bhilai, which is mentored by IITH, to seed the environment for effective teaching right from inception.

iTIC FOUNDATION

Inventions and innovations are key words on which the foundation of IITH is built. Taking forward this ideology to a higher level of implementation, IITH started “i-TIC Foundation IIT Hyderabad” (i-TIC), which is a registered society. i-TIC has launched an incubation center called the Technology Business Incubator (TBI) funded by the department of science and technology (DST). The goal of TBI is to create a very supportive and nourishing environment for connecting industries with applied research that has the potential for commercialization.

This is an excellent opportunity for those young scholars and alumni who wish to become successful entrepreneurs and see their hard work and core competencies materializing into reality. In order to achieve this knowledge based entrepreneurship, iTIC provides the necessary facilities, guidance and mentoring, by the faculty members of IITH and industry experts, to develop an ecosystem for entrepreneurship.

GIAN COURSES @ IITH IN 2015-16

With the aim to garner the best international experience into our system of education, enable the interaction of students and faculty with academic and industrial experts from across the world, the Govt. of India approved a new program called “Global Initiative of Academic Networks” (GIAN) in higher education. The GIAN scheme was formally launched on 30 November, 2015 by the Human Resource Development Ministry (MHRD).

Indian Institute of Technology Hyderabad had actively participated in the GIAN program and conducted two GIAN courses in December 2015.

Prof. R. Srinivasan from Texas A&M University, USA along with Dr Shashidhar from the Dept. of Civil Engineering at IITH conducted the first GIAN course on “Hydrological Modeling using SWAT Model” from December 14-23, 2015. Despite a short notice, the course attracted 51 participants including international participants. Another GIAN course “Radar System Design and Signal Processing” was co-taught by Prof. Amit Kumar Mishra from University of Cape Town, S. Africa and Prof. Mohd. Zafar Ali Khan (Dept. of Electrical Engineering, IITH) from January 11-15, 2016. A total of 32 participants attended this one-week course. IIT Hyderabad is set to host more than ten GIAN courses in the summer of 2016.
PLACEMENT REPORT 2015-16

The placements at Indian Institute of Technology Hyderabad for the academic year 2015-16 have yielded 268 offers for 422 registered students. A total of 143 companies had registered for the placement process. Out of them, 92 have made it to the campus and interacted with the students of B.Tech., M.Tech., M.Des., M.Sc. and M.Phil across 14 departments. During 2015-16 some of the new recruiters were Murata Electronics, Hikari Tsushin, VE Commercial Vehicles, Vedanta, Coal India, Wellsfargo, Blue Star and Tata Advanced Systems. The top paying companies were Yahoo Japan, Hikari Tsushin and Paypal. The highest salary offered for 2015-16 was Rs. 35 LPA and the average salary was Rs. 11 LPA. There were seven international offers. A good number of students from UG, PG and M.Sc. have opted for higher education in India and abroad.

2015-16 PLACEMENT DATA (in Percentage)

<table>
<thead>
<tr>
<th>Companies (Sector-Wise)</th>
<th>No of Students Placed</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sector</th>
<th>No of Students Placed</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Construction</td>
<td>10</td>
</tr>
<tr>
<td>IT / Computers - Hardware</td>
<td>20</td>
</tr>
<tr>
<td>IT / Computers - Software</td>
<td>30</td>
</tr>
<tr>
<td>KPO / Analytics</td>
<td>40</td>
</tr>
<tr>
<td>Consultancy</td>
<td>50</td>
</tr>
<tr>
<td>Others</td>
<td>58.5</td>
</tr>
<tr>
<td>Total</td>
<td>143</td>
</tr>
</tbody>
</table>

TEQIP WORKSHOPS

The Ministry of Human Resource and Development, Government of India has initiated a long term program known as ‘Technical Education Quality Improvement Program (TEQIP)’ to aid transformation in the technical education system across India with support of the World Bank. The major objectives are to strengthen the institutions to produce high quality engineers for better employability, enhancing education, research and innovation, and to continuously train faculty members for effective teaching, and so on. IIT Hyderabad has been instrumental in organizing several workshops and programs, with the support of its faculty members across all disciplines. Several workshops, symposiums, and short-term courses, etc. were organized, in which more than 500 faculty members from engineering colleges across India have participated and benefited. Many of these programs were focused on national issues and cutting edge technologies. Apart from technical events, IIT Hyderabad has also taken lead in organizing workshops on softskills improvement for faculty members, in order to facilitate an overall improvement in academic system. IIT Hyderabad believes that TEQIP activities can make the much needed impact in the present education system. Programs organized last year have been tabulated below:

<table>
<thead>
<tr>
<th>Name of the Workshop</th>
<th>Date</th>
<th>No. of Participants</th>
<th>No. of Days</th>
<th>Workshop Coordinator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Effectiveness Nurturing Well Being - 2015</td>
<td>1-2 May, 2015</td>
<td>25</td>
<td>2</td>
<td>Dr. Mahati Chittem</td>
</tr>
<tr>
<td>ISPAT-2015</td>
<td>25-29 May, 2015</td>
<td>32</td>
<td>5</td>
<td>Dr. Mahendra Kumar Madhavan</td>
</tr>
<tr>
<td>Finite Element Method</td>
<td>23-25 Jul, 2015</td>
<td>16</td>
<td>3</td>
<td>Dr. Syed Nizamudhin Khaderi</td>
</tr>
<tr>
<td>MEMS / NEMS</td>
<td>14-18 Dec, 2015</td>
<td>41</td>
<td>5</td>
<td>Dr. Chandra Shekar Sharma</td>
</tr>
<tr>
<td>Thermal analysis of Materials Using DTA, DSC, TG &amp; Dilatometer TAM-III</td>
<td>14-19 Dec, 2015</td>
<td>30</td>
<td>6</td>
<td>Dr. Bharat B Panigrahi</td>
</tr>
<tr>
<td>Materials Microstructure Characterisation using optical and scanning Electron microscope</td>
<td>20-24 Dec, 2015</td>
<td>30</td>
<td>5</td>
<td>Dr. Suhash Ranjan Dey</td>
</tr>
<tr>
<td>X-Ray Scaterring</td>
<td>28-29 Dec, 2015</td>
<td>20</td>
<td>2</td>
<td>Dr. Mudrika Khandelwal &amp; Dr. Chandra Shekar Sharma</td>
</tr>
</tbody>
</table>
IITH Ranks 7th in NIRF

IT Hyderabad bagged 7th rank in the first edition of National Institutional Ranking Framework (NIRF) conducted by the Ministry of Human Resource Development. A large number of parameters were identified to compare and rank the institutions which were divided into five major categories i) Teaching and Learning ii) Outreach and Industry iii) Research Productivity, Impact and IPR, iv) Graduation Outcome v) Perception. With a weighted score of 77.23, IITH emerged at 7th position.

Alumni Cell

The institute’s alumni association IITHAA is now a formally registered society under the society act of the state of Andhra Pradesh. The institute conducted its first Student Alumni Meet (SAM) on 9 Jan 2016 and around 60 alumni participated in the one-day program. The event started with brief interaction between alumni and the students of IITH in the morning at the permanent campus followed by sports and sci-tech exhibitions at the temporary campus at ordnance factory.

Student exchanges

IITH is having a very healthy international exchange program with several universities. Under the exchange program with Ritsumeikan University, Japan, 10 IITH students visited Ritsumeikan University in the month of June to participate in problem-based learning (PBL) program. Under this program 5 team, each comprising 2 students from IITH and 2 students worked on problems that are relevant to the Indian social scenario. The second PBL workshop was held in IITH in the month of September. The visiting Japanese students were given a number of lectures and lab tours in addition to the exposure given to the culture and heritage of India and in particular Hyderabad. Each PBL workshops were of 10 days duration. In addition to the short-term exchanges, 6 students from IITH and Ritsumeikan University also participated in exchange visits that lasted 3 months.

Startup India Launch

The honorable prime minister Shri Narendra Modi launched the start up India movement on 16 Jan 2016. The event was live streamed at IITH using the KNK network and students turned up in large numbers to watch the unveiling function.
COLLABORATION WITH JAPAN

The year 2015-16 has been an eventful year for JICA FRIENDSHIP Project. This year the project completed 4 years of operations and a joint evaluation team has evaluated the project to be progressing positively in the direction of achieving the set goals.

Major achievements of the project include:

- **Scholarships**: In total 37 students have been provided scholarship to study in various universities in Japan since 2012 and specifically in the current FY 10 students have been provided scholarships by JICA for pursuing Ph.D program in Japan. Further the Scholarship program has been extended till 2024 with an annual intake of 30 students.

- **Academic Interaction**: 51 Japanese faculties have visited IIT Hyderabad for various academic activities and similarly 79 IITH faculty visited Japan for activities related to joint research, workshops and symposiums. During the said interactions the faculties concerned have published several joint papers and also have begun joint research with funding from JSPS, JST / DST and also from Japanese industry. Additionally, these academic interactions between IITH faculty and Japanese Universities have resulted into signing of MoU with 4 Japanese Universities including with The University of Tokyo and Keio University during FY 2015-16. In addition to the said, 4 MoUs have been signed by IITH with graduate schools of other Universities.

- **Industry Interaction**: Interaction of IITH faculty with Japanese industry over the last 4 years have resulted in signing of MoU with 5 Japanese companies for research collaboration. In addition to these MoUs, industry interaction has also resulted in providing internships to IITH graduates in Japanese companies and also 4 Japanese companies started recruiting IITH graduates for their Japan operations.

- **Events**: The project has been organising 2 major annual events one each for Industry and academic interaction respectively since 2012. The Academic interaction event “IITH Japan Academic Fair” has become a popular event among IITH students planning to study in Japan where a platform has been created for direct interaction of students with the university representatives. The Industry event “Connect IITH” is being organised since 2014 in Tokyo annually where a platform has been created for IITH and interested Japanese industry to directly interact and explore opportunities for joint research, internships and recruitments.

- **Workshops / Seminars & Conferences**: In addition to the regular visits for interactions, IITH faculty and Japanese universities have organised several workshops, seminars and conferences both in India and Japan during the past 4 years. During the year 2015-16 IITH with the support of JICA FRIENDSHIP Project has organised 3 workshops in India, 1 workshop in Japan and one international conference in Japan on Digital Fabrication.

- **Student Exchange**: Since the inception of the project in 2012, a total of 87 Japanese students from various Universities visited IITH and 23 IITH students visited Japanese Universities under the student exchange program for research activities and joint workshops and this is expected to increase during the next few years as more Universities are willing to participate in this program with IITH.

The project has successfully implemented various activities and events during the last financial year and is planning to expand the activities further in the current year to reach the targeted goal of the project.
In today’s global economy, all leading academic institutions strive on international collaborations. With more and more inter and multi-disciplinary conventional research paradigm is indispensable. IIT in the past couple of years has been highly successful in building tie-ups with leading academic institutions around the globe. Some of the MoUs that IIT has signed in the last financial year are as follows:

- Deakin University, Melbourne, Australia
- Hogskolen I Gjovik (HIG), Norway
- Purdue University, USA
- Allied Telesis Labs Limited, New Zealand
- Osaka University, CREHIM, Japan
- Osaka University, Japan
- University of Tokyo, Japan
- Graduate School of Engineering, Osaka University, Japan
- Graduate School of Engineering Science, Osaka University, Japan
- Keio University, Japan
- Keio University Japan - Graduate School of Media and Governance
- Texas Tech University, USA
- McMaster University, Canada

SWACCH BHARAT

Swachh Bharat activities was formally launched this year on October 2nd the birth anniversary of the father of our nation Mahatma Gandhi who tirelessly advocated the importance of cleanliness. This was followed by cleaning of the hostel area in the Ordnance Factory (ODF) campus by a large number of student volunteers. All the student volunteers were provided with adequate cleaning implements and safety gear. In addition, a formal pledge taking ceremony was also initiated at the upper dining hall in the Kandi campus at the beginning of the year. The pledge was initiated by the members of the ‘Clean India Committee’. A large number of students took the pledge to make India a cleaner and greener nation. In the following weeks, a number of cleaning activities were carried out in the Kandi campus especially near the mess area. The 2016 graduating batch of students actively participated to fulfill the requirements of the Clean India Course CI 101.
The seventh foundation day of the institute was celebrated on 25 March 2015 with Dr Anil Kakodkar, chair of engineering eminence at the Bhabha Atomic Research Center as the chief guest. Academic excellence awards and excellence in teaching awards were distributed during the function.

The Fourth Annual Convocation of IITH was held on the 8 Aug 2015 and Dr Bibek Debroy, member NITI Aayog graced the occasion as chief guest and delivered the convocation address. The function was presided over by the Chairman Board of Governors (BoG) Mr. BVR Mohan Reddy and the director Prof. U.B. Desai.

Independence Day celebrations were held in the campus on 15 August 2015.

Republic Day celebrations were held in the campus on 26 January 2016.
VISITING FACULTY OFFERING CREATIVE ARTS COURSES

Jayachandran Palazhy  
Specialization: Dancing and choreography

Yuka Kataoka  
Specialization: Flamenco Dance

Shalinee Kumari Jha  
Specialization: Madhubani Painting

Ramana Gogula  
Specialization: Music

Wasifuddin Dagar  
Specialization: Dhrupad

M K Raina  
Specialization: Folk Theatre of India

Purvadhanashree  
Specialization: Indian Classical Dance

Shubhra Gupta  
Specialization: Cinema
R. Srinivasan
Professor and Director of Spatial Sciences Laboratory at Texas A&M University, USA

Amit Kumar Mishra
Department of Electrical Engineering, University of Cape Town, South Africa

Amit H. Verma
Purdue University, USA

Barna Saha
University of Massachusetts Amherst, USA

Walter Illman
University of Waterloo, Canada

Venkatesh Kodur
Michigan State University, USA

J N Reddy
Texas A&M University, USA

Emmanuel Bouzy
University of Lorraine, France

Matthew MacLeod
Stockholm University, Sweden

Sumit Roy
University of Washington, Seattle, USA

abdeldjelil Belarbi
University of Houston, USA
The Biomedical Engineering Department (BME) at IIT Hyderabad is the place where boundaries between engineering and science disciplines fade in order to focus on research and education targeted for ongoing and future technology. The primary mission of the department is to foster interdisciplinary work of highest quality by bringing together a broad spectrum of faculty expertise under a single umbrella to focus on research in Biomedical engineering. By converging the engineering expertise in analytical and experimental methods to biological and medical sciences, BME aims at unveiling the unseen in biology and innovations in technology that can be translated to clinical health care. Over the past year, Biomedical Engineering at Indian Institute of Technology Hyderabad has grown to a total strength of more than forty five with one associate professor, six assistant professors, two postdoctoral fellows and many JRF, 20 Ph.D students and 18 Masters of Technology students. BME has made substantial investments in strengthening the core research facilities and course curriculum. The newly introduced BME minor program of 12 credits is designed for undergraduates to gain interdisciplinary knowledge in areas of Bioengineering. Faculty in the department of BME undertake research in broad spectrum of areas related to Biomedical Engineering/Bioengineering such as Biophotonics, Lab on a Chip Biosensors, Biophysics, Biomechanics, Neuroscience, Tissue Engineering, 3D Bioprinting and Nanomedicine. The department will continue to leverage its core strengths in emerging as one of the leading centers of excellence in Biomedical engineering in the country.
FACULTY

Renu John
Ph.D - IIT Delhi
Associate Professor & HoD
Research Areas: Optical imaging and low coherence microscopy, nanobiophotonics, biosensors

Harikrishnan Narayanan Unni
Ph.D - NTU, Singapore
Assistant Professor
Research Areas: Lab on Chip Microfluidics and Nanofluidics, Biophysics, Biomechanics

Subha Narayan Rath
Ph.D - NUS, Singapore
Assistant Professor
Research Areas: Regenerative medicine, stem cells, Natural biomaterials, Decellularized scaffold, stem cell 3D printing

Jyotsnendu Giri
Ph.D - IIT Bombay
Assistant Professor
Research Areas: Nanomedicine, Regenerative medicine, Drug delivery, Therapeutics and diagnostics

Mohan Raghavan
Ph.D - IISc., Bangalore
Assistant Professor
Research Areas: Computational Neuroscience, Motor system, Spinal cord, Bionics, Assistive devices, Rehabilitation

Aravind Kumar Rengan
Ph.D - IIT Bombay
Assistant Professor
Research Areas: Nanomedicine, Cancer Nanotechnology, Photothermal Therapy, Nanotoxicology, Triggered Drug Delivery and Theranostics

Falguni Pati
Ph.D - IIT Kharagpur
Assistant Professor
Research Areas: 3D Bioprinting, Tissue Engineering and Regenerative Medicine, Biomaterials, Tissue and Organ Models

VISITING FACULTY

Ramana Vinjamuri
Assistant Professor, PhD (Stevens Institute of Technology, New York)
Research Areas: Brain Machine Interfaces
Teaching Subject: BM 1093: Principles of Design in Biomedical Engineering (1 credit)
BM 1050 Brain machine interfaces (1 credit)
Books / Chapters


3D printing technology for day-to-day application, Subha N. Rath, Manorama Year Book 2015.

Publications

(In Peer-Reviewed Journals)


Publications

(In Peer-Reviewed Conferences)


Funded Research Projects 2015-16

Renu John, Characterization of micro-nanostructures using DHM, BRNS, November 2015, Rs. 34.0 Lakhs.

Jyotsnendu Giri, Engineering Nanomedicine, 2015-2020, DBT, March 2015, 32.5 Lakhs.

Jyotsnendu Giri, Biommetic, tissue adaptive nanofiber membrane for guided tissue regeneration, DST-Nanomission, October 2015, Rs. 70.94 Lakhs.


Jyotsnendu Giri, Nanoplatform-based, multimodal therapy against breast cancer stem cells and drug resistance, DBT, March 2016, Rs. 60.56 Lakhs.

Mohan Raghavan, Development of a reusable library of model components for human spinal cord modeling and simulation, SERB, 16 November 2015, Rs. 24.3 Lakhs.

Aravind Kumar Rengan, Liposome gold nanoparticles for cancer theranostics, DST-INSPIRE, 11 January 2016, 35.0 Lakhs.

**Talks Given In National / International Conferences**

Renu John, ‘Quantitative phase microscopy with nanometric sensitivity, Recent Advances in Optical Sciences’, RAOS 2016, University of Hyderabad, 4-5 May 2016.


Renu John, *3-D Optical imaging and phase microscopy: Clinical applications, Indo-Norway Workshop on Optics and Photonics in Biosensing and Bioimaging*, IIT Delhi, 22 December 2015.


**Workshops / Symposia Organised**

Symposium on Healthcare Entrepreneurship 2015 (SHE), Hyatt, Gachibowli, 3-4 December 2015.

Symposium on Neuronal Networks and Physiology, jointly organized by MNR Medical College and Department of BME, IIT Hyderabad, 27 April 2016.

**Awards & Recognitions**

‘Inspire Faculty Award, 2015’, Aravind Kumar Rengan.

‘Innovative Young Biotechnologist Award, 2015’, Aravind Kumar Rengan.

‘Early Career Research Award, 2016’, Aravind Kumar Rengan.

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**Materials Lab**

**Biophotonics Lab**

**Cell Culture Lab**

**M.Tech Teaching Lab**
The Department of Biotechnology (BT) has six faculty members with cutting-edge research expertise in areas encompassing: HIV integration, Cancer biology, NMR, Structural Biology, Epigenetics, DNA Repair, Amyloids & Prion protein biology, Ion channel physiology and channelopathies. Currently two post graduate degree programs are offered: M.Tech in Medical Biotechnology & Ph.D in Biotechnology. The department’s laboratories are well-equipped with advance research infrastructure and equipment such as: Flow-cytometer, Fluorescence Microscope, Multi-mode Readers, High Speed & Ultracentrifuges, Cluster, Spectrophotometer, Nanodrop Reader, Cell & Microbial Culture facilities, Circular Dichroism, FPLC system etc. M.Tech students take advance courses in the first two semesters followed by research work for thesis in any of the above mentioned research fields.

Also, the M.Tech students are trained to improve their presentation skills through seminar courses and scientific writing skills through independent research proposal writing. The Ph.D program comprises of a mandatory rigorous course work followed by thesis work. Students carry out research in well-equipped above mentioned research laboratories.
Basant Kumar Patel
Ph.D - Banaras Hindu University
Assistant Professor & HoD
Research Areas: Protein misfolding, Prion & Amyloid Proteins, Yeast genetics

Anindya Roy
Ph.D - IISc, Bangalore
Associate Professor
Research Areas: DNA repair, Cancer Biology

N.K. Raghavendra
Ph.D - IISc, Bangalore
Assistant Professor
Research Areas: HIV-1 integrase, LEDGF/p75, UBC13, UBE2V1, UBE2V2

Thenmalarchelvi Rathinavelan
Ph.D - University of Madras
Assistant Professor
Research Areas: Molecular Biophysics, Computational Structural Biology, Biomolecular NMR, Molecular Modeling, Bacterial infectious diseases, Trinucleotide repeat expansion disorders

Rajakumara Eerappa
Ph.D - CCMB, Hyderabad
Assistant Professor
Research Areas: X-ray Crystallography, Structural Biology, Epigenetics and DNA repair

Anamika Bhargava
Ph.D - Innsbruck Medical University, Austria
Assistant Professor
Research Areas: Voltage-gated calcium channels, electrophysiology, channelopathies, structure-function relationship, and imaging of ion channels

VISITING FACULTY

Radha Rangarajan
CEO, Vitas Pharma
Technology Business Incubator
University of Hyderabad
Hyderabad 500046
Teaching Subject: BO6040: Essential topics for Bio-industry
Publications
(In Peer-Reviewed Journals)


Recombinant Human Semenogelin-1 (Sg1) and Sg1 (1-159) form Detergent Stable Amyloid like Aggregates in vitro, N. Sharma V. Sivalingam, B.K. Patel, Protein Pept Lett. 23(1), 87-96 (2016).


Selective preference of parallel DNA triplexes is due to the disruption of Hoogsteen hydrogen bonds caused by the severe nonisostericity between the G*GC and T*AT triplets, G. Goldsmith, T. Rathinavelan and N. Yathindra, PLOS one, 11(5):e0155090 (2016).


Seminars Organised
Quantification of antibiotic uptake through outer-membrane protein, Dr. Harsha Bajaj, Jacobs University Bremen, Germany, 16 February 2016.

Mapping Functional Group Free Energy Patterns and Ligand Efficacies from Conformational Dynamics of β2-adrenergic G-protein Coupled Receptor, Dr. Sirish Kaushik Lakkaraju, University of Maryland Baltimore, USA, 6 January 2016.

Mechanisms Regulating Alternative Splicing Networks, Dr. Ashish Misra, Department of Molecular, Cell and Cancer biology, University of Massachusetts Medical School, USA, 18 November 2015.

Workshops / Symposia Organised
One-day workshop on multiscale modeling of biomacromolecules with emphasis on nucleic acids, T. Rathinavelan, 19 March 2016.

Awards & Recognitions
Early Career Research Award (ECRA), Science and Engineering Research Board, Department of Science and Technology, Government of India, Rajakumara Eerappa.
The Department of Chemical Engineering (ChE) at IITH is an international leader in several areas of teaching, research and outreach. Today the department has 17 faculty members, 38 Ph.D, 31 M.Tech, and 82 B.Tech students. The department’s research focus falls into the following broad areas: Energy storage and conversion, Fluid Mechanics, Mineral Processing, Catalysis, Molecular & Cellular Bioengineering, Drug Delivery, Polymers, Nanosciences & Nanotechnology and Process / Stochastic Control. We have state-of-the-art infrastructure and research facilities that cover both theoretical and experimental aspects of all core research areas. The department has received numerous extramural projects, which include several inter-departmental ventures. Our undergraduate curriculum emphasizes heavily both on strong theoretical foundation as well as hands-on experience for solving real world problems. At the post-graduate level, emphasis is given to honing a student’s research skills for practical applications.
Vinod M. Janardhanan  
Ph.D - KIT, Germany  
Associate Professor  
Research Areas: Fuel cells, Heterogeneous catalysis

Chandra Shekhar Sharma  
Ph.D - IIT Kanpur  
Assistant Professor  
Research Areas: Nanostructured Carbon Materials, Electrospun Polymer and carbon Nanofibers, Bioinspired Functional Surfaces, Electrode Materials for Li ion battery and supercapacitors

Parag D. Pawar  
Ph.D - Johns Hopkins, USA  
Assistant Professor  
Research Areas: Biophysics, Polymicrobial Biofilms, Intercellular Interactions, Bacterial Infections

Saptarshi Majumdar  
Ph.D - IIT Kharagpur  
Associate Professor  
Research Areas: Polymerization, Drug Delivery, Electrochemical Transport, Equilibrium & Non-equilibrium Thermodynamics, Process Modeling

Debaprasad Shee  
Ph.D - IIT Kanpur  
Assistant Professor  
Research Areas: Metal and metal oxide catalysts, Biomass conversion, Multifunctional catalytic material

Anand Mohan  
Ph.D - Texas A&M, USA  
Assistant Professor  
Research Areas: Complex Fluid Rheology, Cardiovascular Mechanics

Phanindra Varma Jampana  
Ph.D - University of Alberta, Canada  
Assistant Professor  
Research Areas: Compressed Sensing, System Identification

Sunil Kumar Maity  
Ph.D - IIT Kharagpur  
Associate Professor  
Research Areas: Heterogeneous catalysis, Bioenergy, Steam reforming and oxidative steam reforming, Hydrodeoxygenation of vegetable oils, Oligomerization of olefins, Thermodynamic analysis, Process design using Aspen Plus, Techno-economic analysis

Kishalay Mitra  
Ph.D - IIT Bombay  
Assistant Professor  
Research Areas: Multi-objective optimization, Optimization under uncertainty, Surrogate optimization, Data based modeling, Evolutionary Computation, Optimal Control, Supply chain optimization, planning and scheduling, Computational biology

Narasimha Mangadoddy  
Ph.D - University of Queensland - Australia  
Assistant Professor  
Research Areas: Mineral Processing, CFD, Multiphase Flows, Fluidization, Particulate Technology

Lopamudra Giri  
Ph.D - University of Iowa, USA  
Assistant Professor  
Research Areas: Systems biology, Biochemical Engineering / biotechnology, Drug design, pharmacogenomics
Chemical Engineering

**Meduri Praveen**  
Ph.D - University of Louisville, USA  
*Assistant Professor*  
*Research Areas*: Energy Storage, Batteries, Nanomaterials, Energy Conversion, Photo electrochemical Water Splitting, Li-air batteries, Li-S batteries

**Devarai Santhosh Kumar**  
Ph.D - IIT Madras  
*Assistant Professor*  
*Research Areas*: Bioprocess Technology, Bioreactors scale up, Enzyme Production, Upstream, Fermentation Technology, Downstream, Food and Nutrition, Solid State and Sub-Merged Fermentation

**Balaji Iyer Vaidyanathan Shantha**  
Ph.D - IIT Bombay  
*Assistant Professor*  
*Research Areas*: Biomimetic materials design, Polymer composites, Chromosome organization, Multiscale simulations

**Satyavrata Samavedi**  
Ph.D - Virginia Polytechnic Institute and State University, USA  
*Assistant Professor*  
*Research Areas*: Polymeric biomaterials/scaffolds, Tissue engineering, Stem cell differentiation, Drug delivery, In vitro disease models, Immunomodulation

**Arijit Sarkar**  
Ph.D - IIT Bombay  
*Assistant Professor*  
*Research Areas*: Colloids and Interfacial Science, Polymer, Applied Mechanics

Designing the Future
Patents Filed
Kalagadda Venkateswara Rao, Solleti Goutham and Devarai Santhosh Kumar, Development of Low Temperature Gas Sensor by of Microbial Biofilms with Ferrites Nanomaterials, TEMP/E-1/13130/2016-CHE.

Books / Chapters

Publications
(In Peer-Reviewed Journals)


Candle soot derived fractal like carbon nanoparticles network as high rate lithium ion battery anode material, M. Kakunuri, C. S. Sharma, Electrochimica Acta, 180, 353 (2015).


Tuning the Mechanical Properties of Polymer-Grafted Nanoparticle Networks through the Use of Biomimetic Catch Bonds, B. L. Mbanga, B. V. S. Iyer, V. V. Yashin, and A. C. Balazs, Macromolecules, 49, 1353-1361 (2016).

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**Publications**

(In Peer-Reviewed Conferences)


Enabling Online Optimization and Control of Complex Models through Smart Surrogates based on ANNs, M. S. Soumriti, D. P. Pantula, S. Majumdar, K. Mitra, *IEEE Indian Control Conference, Hyderabad*, 4 – 6 January 2016, DOI: 10.1109/INDIANCC.2016.7441131.


**Funded Research Projects 2015-16**

Vinod M. Janardhanan, *Development of chemical kinetics model and integrated pulverized coal fired furnace performance software BHEL*, 9 November 2015, Rs. 15.70 Lakhs.

Chandra Shekhar Sharma, *Electrospun Polymer and Carbon Nanofibers for Energy, Environmental and Healthcare Applications*, DST, September 2015, Rs. 35.00 Lakhs.

Phanindra Varma Jampana, *Design of SAR Image Pre-Processing Techniques for Improving Probability of Correlation*, DRDL, 23 September 2015, Rs. 10.00 Lakhs.


Kishalay Mitra, *Direct Recycling of Polystyrene based Waste Objects using Orange Peel EXTRACT for Oil Spills Remediation*, DST, March 2016, Rs. 44.00 Lakhs.
Seminars Organised

Engineering in medicine: Rational optimization of hepatitis C treatment, Narendra M. Dixit and Department of Chemical Engineering and Centre for Biosystems Science and Engineering, Indian Institute of Science, Bangalore, February 2016.

Integrating Stochastic Model Predictive Control and Experiment Design for Nonlinear Systems, Dr Vinay Anil Bavdekar, Postdoctoral fellow, Department of Chemical and Biomolecular Engineering, University of California, Berkeley, CA, USA, March 2016.

Talks Given In International / National Conferences


Lattice Boltzmann simulation of pressure-driven displacement flow of immiscible liquids, Ritsumeikan University, Japan, 15 January 2015.


Linear stability analysis and direct numerical simulation of two layer channel flow, 68th Annual Meeting of the APS Division of Fluid Dynamics, Boston, Massachusetts, 22–24 November 2015.

Dynamics of rising bubble inside a viscosity-stratified medium, 68th Annual Meeting of the APS Division of Fluid Dynamics, Boston, Massachusetts, 22–24 November 2015.


Dynamics of surfactant-laden evaporating droplets, 68th Annual Meeting of the APS Division of Fluid Dynamics, Boston, Massachusetts, 22–24 November 2015.

CFD Simulations as an alternate diagnostic tool for blocked arteries, Chemeference (Poster Session), Hyderabad INDIA, December 2015.

Hydrodeoxygenation of vegetable oil for Production of Green Diesel, International Conference on Recent Trends in Energy Technologies, Department of Chemical Engineering, Haldia Institute of Technology, WB, India, 21-23 January 2016.

Kumar Mayank, Narasimha Mangadoddy, Predicting power draw and energy spectra of a tumbling mill using two way coupled DEM-CFD model, Mineral Processing Technology (MPT). Pune, 5-7 January 2016.


Karthik MG, M. Kakunuri and Chandra S. Sharma, Effect of Disorder Induced By Ball Milling on the Electrochemical Performance of Catalytically Graphitized Carbon Xerogel As Anode for Lithium Ion Batteries, 227th ECS Meeting, Chicago, IL (USA), 24-28 May 2015.


Antibiotic Tolerance of Bacterial Biofilms: An Individual-Based Cellular Automata Model.


Multi-scale materials as electrodes for Li-ion batteries, Conference on Energy and Environment, Osaka University, Osaka, March 2016.

Workshops / Symposia's Organised

Sixth National Level Chemical Engineering Research Scholar’s Symposium, ChEmference 2015, 5-6 December.

TEQIP Workshop on MEMS and NEMS (Design and Fabrication), 14-18 December 2015.

TEQIP Workshop on X-Ray Scattering Techniques (SAXS and WAXS), 28-29 December 2015.

Local Arrangements Chair, Indian Control Conference 2016, An IEEE conference organized by IIT Hyderabad and Mahindra Ecole Centrale, Hyderabad, 4-6 June 2016.

Awards / Recognitions

Excellence in Teaching award from IIT Hyderabad for 2015 academic year, Narasimha Mangadoddy.

KHARE award for best paper "Predicting power draw and energy spectra of a tumbling mill using two way coupled DEM-CFD model" in the IME International seminar on Mineral Processing Technology-2016 held at Pune during 7-9 January, 2016, Narasimha Mangadoddy.
The Department of Chemistry (CY) is actively conducting research in cutting-edge areas of Organic, Inorganic and Physical Chemistry, as well as fulfilling the needs of the undergraduate program (BTech and MSc) of IIT Hyderabad. The Department of Chemistry currently has 10 faculty members. At present, there are 50+ research scholars in the department, pursuing Ph.D, and thirty four students who are enrolled in the two year M.Sc program; they are mentored by nine faculty members. Many of our M.Sc students are currently pursuing Ph.D at universities in, USA, Japan and Europe. The department also has several sponsored projects in diverse areas of Chemistry.

The department, has state of the art research facilities that include, 400 MHz NMR, ESR, BET analyser, HRMS, Single Crystal- and Powder- XRD, CD, Fluorescence/lifetime and Raman spectrometers, Atomic force microscopy (with conductive, electrostatic force, magnetic force, surface potential, nanolithography modes), Gas Chromatography-Mass Spectrometer, HPLC, Glove boxes, and many such sophisticated set-ups. The department is also equipped with necessary infrastructure, for carrying out wet chemical syntheses or related experimentation, at both undergraduate and postgraduate level. Our aim is to produce highly sought after and knowledgeable graduates for pursuing careers with academia, industry and government.
Melepurath Deepa  
Ph.D - Delhi University  
**Associate Professor & HoD**  
**Research Areas:** Applied Electrochemistry

Faiz Ahmed Khan  
Ph.D - University of Hyderabad  
**Professor**  
**Research Areas:** Transition Metal-mediated reactions in organic synthesis, Discovery of New Methodologies and Control of Stereochemistry in organic synthesis, Chemical Synthesis in Ionic Liquids, and Supported Catalysts, Synthesis of Natural and aesthetically pleasing.

G. Prabusankar Ganesan  
Ph.D - IIT Bombay  
**Associate Professor**  
**Research Areas:** Organometallic Chemistry, Late transition metal and main group metal chemistry, Homogeneous catalysis, Molecules to materials, and metal based drugs

Tarun K. Panda  
Ph.D - Free University - Berlin, Germany  
**Associate Professor**  
**Research Areas:** Main group chemistry, Coordination chemistry, Lanthanide chemistry, Homogeneous catalysis, X-ray Crystallography and structure analysis

D. S. Sharada  
Ph.D - University of Hyderabad  
**Assistant Professor**  
**Research Areas:** C-H Activation, Cross Dehydrogenative Couplings (CDC) Metal-Free Atom Incorporations, Bio-Inspired Organic Synthesis, Benign Organic Synthesis, Heterocyclic Chemistry and Medicinal Chemistry

Ch. Subrahmanyanam  
Ph.D - IIT Madras  
**Associate Professor**  
**Research Areas:** Catalysis, Nanomaterials and Energy Systems

Faiz Ahmed Khan  
Ph.D - University of Hyderabad  
**Professor**  
**Research Areas:** Transition Metal-mediated reactions in organic synthesis, Discovery of New Methodologies and Control of Stereochemistry in organic synthesis, Chemical Synthesis in Ionic Liquids, and Supported Catalysts, Synthesis of Natural and aesthetically pleasing.

G. Prabusankar Ganesan  
Ph.D - IIT Bombay  
**Associate Professor**  
**Research Areas:** Organometallic Chemistry, Late transition metal and main group metal chemistry, Homogeneous catalysis, Molecules to materials, and metal based drugs

Tarun K. Panda  
Ph.D - Free University - Berlin, Germany  
**Associate Professor**  
**Research Areas:** Main group chemistry, Coordination chemistry, Lanthanide chemistry, Homogeneous catalysis, X-ray Crystallography and structure analysis

D. S. Sharada  
Ph.D - University of Hyderabad  
**Assistant Professor**  
**Research Areas:** C-H Activation, Cross Dehydrogenative Couplings (CDC) Metal-Free Atom Incorporations, Bio-Inspired Organic Synthesis, Benign Organic Synthesis, Heterocyclic Chemistry and Medicinal Chemistry

Ch. Subrahmanyanam  
Ph.D - IIT Madras  
**Associate Professor**  
**Research Areas:** Catalysis, Nanomaterials and Energy Systems

Faiz Ahmed Khan  
Ph.D - University of Hyderabad  
**Professor**  
**Research Areas:** Transition Metal-mediated reactions in organic synthesis, Discovery of New Methodologies and Control of Stereochemistry in organic synthesis, Chemical Synthesis in Ionic Liquids, and Supported Catalysts, Synthesis of Natural and aesthetically pleasing.

G. Prabusankar Ganesan  
Ph.D - IIT Bombay  
**Associate Professor**  
**Research Areas:** Organometallic Chemistry, Late transition metal and main group metal chemistry, Homogeneous catalysis, Molecules to materials, and metal based drugs

Tarun K. Panda  
Ph.D - Free University - Berlin, Germany  
**Associate Professor**  
**Research Areas:** Main group chemistry, Coordination chemistry, Lanthanide chemistry, Homogeneous catalysis, X-ray Crystallography and structure analysis

D. S. Sharada  
Ph.D - University of Hyderabad  
**Assistant Professor**  
**Research Areas:** C-H Activation, Cross Dehydrogenative Couplings (CDC) Metal-Free Atom Incorporations, Bio-Inspired Organic Synthesis, Benign Organic Synthesis, Heterocyclic Chemistry and Medicinal Chemistry
Book Chapters

Publications
(In Peer-Reviewed Journals)

Low cost copper nanostructures impart high efficiencies to quantum dot solar cells, P.N. Kumar, M. Deepa, P. Ghosal, ACS Applied Materials & Interfaces 7, 13303-13313 (2015).


Aromaticity driven 1,6-conjugate addition of amines and phenols to cyclohexadienone derivative, R. Babu and F. A. Khan, Tetrahedron, 72, 699-705 (2016).


Triethylamine-Mesyl Chloride/Thionyl Chloride: A Reagent for Hydrodebromination of Diquinane-


A Rare Binuclear Macro cyclic Planar 20, 26 and 34 Membered Zinc-Organic Rings, P. Suresh and G. Prabusankar, Polyhedron, 93, 84-90 (2015).


Linear Cu(I) chalcogenones: Synthesis and application in borylation of unsymmetrical alkynes,


Chiral Alkaline-Earth Metal Complexes Having M-Se Direct Bond (M = Mg, Ca, Sr, Ba): Syntheses, Structures and Caprolactone Polymerisation, *RSC Advances*, 5, 37755-37767 (2015).


Nickel (II) Complexes Having Imidazol-2-ylidene-N'-phenylurea Ligand in the Coordination Sphere – Syntheses and Solid state structures, K. Naktode,


Funded Research Projects 2015-16

Surendra Kumar Martha, *Feasibility Study for the Development & Realisation of Pouch/Prismatic Sodium Ion Cells for defence applications*, DRDO-CARS, January 2016, Rs. 78.0 Lakhs.

Surendra Kumar Martha, *Development and Demonstration of High Energy Density Valve-Regulated Lead Acid (VRLA) Batteries for Remote Area Power Supply (RAPS) and Electric Vehicles (EVs)*, CERI-DST, May 2016, Rs. 57.59 Lakhs.


Talks Given In International / National Conferences


Delivered Prof. C.N.R. Rao National Prize in Chemical Sciences Lecture in the 18th National Symposium in Chemistry (NSC-18), 4-7 February 2016.

G. Prabusankar, *Catalytically Active Lead(II)-Azolium Coordination Assemblies Through Post-Activation*

Tarun K. Panda, Amidophosphines and their Chalcogen Derivatives as Ligands in the Alkali and Alkaline-Earth Metal Coordination Sphere, Department of Chemistry, Tokyo Institute of Technology, Japan 19 June 2015.

Tarun K. Panda, Imidazolin-2-iminato Complexes of Group 2 and 4 Metals, Department of Chemistry, Tokyo Institute of Technology, Japan, 29 June 2015.


LMR-NMC as an Advanced Cathode Material for High Energy Density Lithium Ion Batteries, Japan-Taiwan Bilateral workshop on Nano Science 2015, Osaka University, Suita Campus, 14-16 November 2015.

Lithium-Ion Batteries: Fundamentals and applications, Department of Applied Chemistry, Graduate School of Engineering, Suita Campus, Osaka University, 16 November 2016.

Lithium Manganese rich based NMC oxide cathodes for advanced lithium ion batteries, Indo-US science and technology forum, Recent advances in multiscale, multiphysics, analysis of energy conversion in lithium ion batteries, VMCC auditorium, IIT Bombay, 17-19 June 2016.

Awards & Recognitions

Prof. C.N.R. Rao National Prize in Chemical Sciences (2015), Faiz Ahmed Khan


The Best Poster Award in CRSI Emerging Trends in Chemistry, CRSI-MKU, 18-20 February 2016, Prabu Sankar Ganesan.

The Best Poster Award in 10th Mid-year CRSI Symposium in Chemistry (CRSI Mid-2015), NIT Trichy, 23-25 July 2015, Prabu Sankar Ganesan.

DST-DAAD PPP, visiting faculty at Ruhr University of Bochum, Germany, May 2016, Prabu Sankar Ganesan.

Other Events

6 days TEQIP workshop on Electrochemical Energy Conversion and Storage (ECS-2016), IIT Hyderabad, Surendra K Martha, Ch. Subrahmanyam, M. Deepa, 9-14 May 2016.
Our vision is to be the frontrunners in addressing the current and future needs of society in “all things Civil”. That is, in developing and constructing advanced and robust structures, laid on better foundations, in satisfying the water needs of the country, and help develop a cleaner and healthier environment free from chemical and biological pollutants. The department will focus on both applied and basic research, provide solutions for immediate use, and generate new science that will help drive the future evolution of Civil Engineering (CE). Industry interaction and academic exchanges will become an integral characteristic of our department.

The Department of Civil Engineering currently has 16 faculty members. The department offers a Bachelor of Technology (B.Tech) program in Civil Engineering, and two year and three year Master of Technology (M.Tech) programs in three specializations: Structural Engineering, Geotechnical Engineering, and Environmental and Water Resource Engineering. The three year program is ‘thesis-by-research’ and allows students to gain in-depth research exposure. The department also offers a Doctor of Philosophy (Ph.D) program in four specializations: Structural Engineering; Geotechnical Engineering; Water Resources Engineering; and Environmental Engineering.

The department is developing state-of-the-art laboratory facilities in each specialization. Key advanced equipment have already been procured and labs will be used both for research and undergraduate teaching. Current facilities include laboratories in Construction Materials, Structural Engineering, Advanced Cement-based Materials, High Performance Concrete, Structural Materials, Large Scale Structures, Computational Structural Mechanics, Advanced Geotechnical Testing, Geosynthetics, Advanced Soil Dynamics, Ground Characterization, Computational Geotechnical, Water Quality Analysis, Water and Waste Water, Solid waste, Hazardous waste, Trace Contaminants, Microbiology, Air Quality Monitoring, Hydraulic Engineering, Hydrology, Geographic Information Systems (GIS).

In addition, the faculty of Civil Engineering are actively involved in multidisciplinary research and training in the area of sustainable development under “Center of Excellence in Sustainable Development” funded by MHRD. With our current and evolving faculty strength, motivated community, and exceptional laboratory facilities, we have all the necessary ingredients in realizing our vision and are confident about it.
B. Umashankar  
Ph.D - Purdue University, USA  
Associate Professor & HoD  
Research Areas: Foundation Engineering, Reinforced Soil, Soil-Structure Interaction, Recyclable Materials in Geotechnics

Kolluru V.L. Subramaniam  
Ph.D - Northwestern University, USA  
Professor  
Research Areas: Concrete Material, Concrete Structures

Sireesh Saride  
Ph.D - IISc Bangalore  
Associate Professor  
Research Areas: Pavement Geotechnics, Ground Improvement, Numerical Modeling, Sustainable Design of Soil Structures

Amirtham Rajagopal  
Ph.D - IIT Madras  
Associate Professor  
Research Areas: Finite Element and Mesh less methods, Fracture and Damage Mechanics, Mechanics of composites

K.B.V.N. Phanindra  
Ph.D - New Mexico State University, USA  
Assistant Professor  
Research Areas: Groundwater Flow and Transport Modeling; Hydrogeology; GIS in Groundwater

T. Shashidhar  
Ph.D - IIT Madras  
Associate Professor  
Research Areas: Bioremediation, Contaminant Transport Modeling, Environmental Hydraulics, Hydrology, Hydro-climatology, Remote Sensing and GIS applications, Waste water treatment, Solid and Hazardous waste management

S. Suriya Prakash  
Ph.D - Missouri University of Science & Technology - Rolla, USA  
Associate Professor  
Research Areas: Reinforced Concrete, Prestressed Concrete, Precast Systems, FRP Composites

Mahendrakumar Madhavan  
Ph.D - University of Alabama - Birmingham, USA  
Associate Professor  
Research Areas: Steel Structures, Steel-Concrete composites, Cold formed Steel, Retrofitting of steel structures

Debraj Bhattacharyya  
Ph.D - University of New Brunswick, Canada  
Assistant Professor  
Research Areas: Water and Wastewater treatment, waste management, biofuel production from lignocellulosic biomass

Basudeb Biswal  
Ph.D - University of Padova, Italy  
Assistant Professor  
Research Areas: Water Resources Engineering / Hydrology

Asif Qureshi  
Ph.D - Swiss Federal Institute of Technology, Switzerland  
Assistant Professor  
Research Areas: Environmental science and health, POPs, heavy metals

B. Munwar Basha  
Ph.D - IISc Bangalore  
Assistant Professor  
Research Areas: Computational Geomechanics, Reliability Based Designs in Geotechnical & Geoenvironmental Engineering, Municipal Solid Waste Landfills, Soil Dynamics and Earthquake Resistant Design of Retaining Structures and Rock Mechanics
Riddhi Singh  
**Ph.D - The Pennsylvania State University, USA**  
**Assistant Professor**  
*Research Areas:* Rainfall runoff modelling; Uncertainty analysis; Prediction in ungauged basins; Climate and land use change impact on water resources; Multi-objective optimization; Decision making under uncertainty

Surendra Nadh Somala  
**Ph.D - California Institute of Technology, USA**  
**Assistant Professor**  
*Research Areas:* Engineering Seismology, Inversion and Imaging of Seismic Source & Structure, Probabilistic Seismic & Tsunami Hazard Assessment, Computational Fracture Mechanics, Reservoir Induced Microseismicity, Structural Health Monitoring, Earthquake Resistant Design of Structures, Performance Based Seismic Design

Anil Agarwal  
**Ph.D - Purdue University, USA**  
**Assistant Professor**  
*Research Areas:* Structural Engineering, Structural Fire Behavior and Design, Structural Steel Design, Steel-Concrete Composite Structures, Composite Structures, Extreme Loading Conditions, Analysis and design for Wind Loads, Structural Dynamics, Earthquake Engineering, Soil-Structure Interaction

M R Madhav  
**D.Sc., FNAE**  
*Positions Held:* Professor in Dept. of Civil Engineering IIT Kanpur; ISSMGE Past Vice-President for Asia

Ananthnarayanan K  
**Professor, Department of Civil Engineering, IIT Madras**  
*Teaching Subject:* Construction Management

Chandrasekhararam D  
**Chair Professor, Department of Earth Sciences, IIT Bombay**  
*Teaching Subject:* Geology and Geothermics
Patents Filed


Cep Courses Conducted
Phanindra, GIAN Course on Groundwater Flow and Transport Modeling through Fractured Geologic Media, Prof. Walter A Illman, University of Waterloo, Canada, 27 June – 08 July 2016.

GIAN course on Hydrological Modeling with SWAT, Shashidhar, December, 2015.

GIAN/TEQIP Workshop on Structural Upgrade and Strengthening of Civil Infrastructure using FRP Composites, Suriya Prakash, 18-29 July 2016.

A Mini Symposium on Wastewater Treatment & Reclamation, D Bhattacharyya, February 20, 2016.

Books / Chapters


Publications
(In Peer-Reviewed Journals)


Evaluation of Rutting Behavior of Geocell Reinforced Sand Subgrades under Cyclic Loading,


Publications

(1n Peer-Reviewed Conferences)


Settlement of rigid rectangular footings on layered soils, B. Umashankar and S. Preethi, Indian Geotechnical Conference, Pune, 17-19 December 2015.


Some finite element approaches for modeling of anisotropic thermoelastic mixture and periodic composites with internal microstructure, A. V. Nasedkin, A. A. Nasedkina, Rajagopal Amirtham, V. V. Remizov, 8th International Conference of the Greek Association for Computational Mechanics, Book of Abstracts, 12-15 July 2015, Volos, Greece.


Nonlocal TSDT for analysis of laminated plates considering surface e.ects, Raghu Piska and Amirtham Rajagopal, 3rd International Conference on Modeling and Simulation in Civil Engineering, GCE Trivandrum, India, 9-11 December 2015.


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Funded Research Projects 2015-16

Mahendrakumar Madhavan, Study on Effect of Imperfection Based on Manufacturing Tolerances in Cold Formed Structural Steel Members, DST, June 2015, Rs. 63.0 Lakhs.

Riddhi Singh, Inter basin water transfer in India: when and how much? Adaptive multi-objective robust decision making for managing water transfers, SERB, 4 March 2016, Rs. 25.0 Lakhs.

Anil Agarwal, Structural assessment and strengthening of existing telecom towers to enable them to support small wind turbine, MNRE, February 2016, Rs. 50.39 Lakhs.

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Seminars Organised

Reproducing earthquakes in a lab: A case study of the 2002 Denali, Alaska Earthquake, Dr. Harsha Bhat, École Normale Supérieure, France, 1 April 2016.

Talks Given In International / National Conferences

B. Umashankar, Advanced design of retaining structures, 3-day Short course on Advances in foundation design for buildings and critical structures, IIIT Hyderabad, 9-10 October, 2015.

S. Sireesh, Application of Geocells in Indian Roads: A Laboratory and Field Perspective, ASTM D35: Geosynthetics Meeting, Mumbai, India, 2 December 2015.


B. Biswal, Channel networks in hydrologic response modelling: model development and validation using ecologically relevant indicators, AGU Fall Meeting 2015, San Francisco, USA 17 December.

A. Qureshi, Mercury in India, a review, and past and future trends, 12th International Conference on Mercury as a Global Pollutant, Jeju, South Korea, June 2015.

B. Munwar Basha, Design of Narrow Backfill Width Retaining Structures under Static & Seismic Loading, Indian Geotechnical Society TC-8 Workshop on Numerical and Physical Modelling, 3 October 2015 Conducted by Department of Civil Engineering, Guru Nanak Dev Engineering College Ludhiana, Punjab, India (Invited by IGS Ludhiana chapter).

R. Singh, Estimating the spatio-temporal distribution of surface water availability across India, Fall meeting of the American Geophysical Union, San Francisco, December 2015.

R. Singh, What controls vulnerability of watersheds to climate and land use change across the United States?, Fall meeting of the American Geophysical Union, San Francisco, December 2015.

S. N. Somala, Application of anti-aliasing filter in seismic source imaging, IDRiM, New Delhi, 28-30 October 2015.

Workshops / Symposiums Organised

Workshop on One health India 2016, 17-24 July 2016.

Joint Organizing Secretary and Website Coordinator for 5th International Conference on Forensic Geotechnical Engineering, Bengaluru, India, 8-10 December 2016.

Awards / Recognitions

Task Force Member of Telangana State Pollution Control Board, T. Shashidhar.


Other Events

M. Madhavan, A TEQIP sponsored five day workshop on Structural Steel Design titled ISPAT 2015, May 25-29 2015.
The Department of Computer Science and Engineering at IIT, Hyderabad is poised for a giant leap through research in cutting-edge computing and technology, while imparting top-class education through innovative pedagogy. The department offers undergraduate (B.Tech) and postgraduate programs (M.Tech. and Ph.D), short courses (Continuing Education Programmes) customized to the needs of industry, and a new Executive M.Tech program in Data Science intended for working professionals from August 2015. The department comprises 15 young faculty members (with several adjunct faculty from reputed academic and industry backgrounds) who are actively engaged in research areas including theoretical computer science, algorithms, graph theory, networking, distributed systems, databases, compilers, machine learning, image/video processing, data mining and information retrieval. The faculty have large sponsored research projects in the application domains of cyber-physical systems (DeitY, Govt of India) and disaster management (in collaboration with Japan). The department also has regular collaborators in industry and academia, such as KDDI labs (Japan), Uurmi Systems, IISc (Bangalore), Tel Aviv University (Israel), NTU (Singapore), Royal Holloway University of London, INRIA (France) etc. The department has risen in stature over its short existence, evidenced by steadily improving opening and closing JEE ranks each year (418 and 879 respectively in 2016). To know more about the department and research interests of the faculty, please visit http://cse.iith.ac.in/.
Bheemarjuna Reddy Tamma  
Ph.D - IIT Madras  
*Associate Professor & HoD*  
*Research Areas: Converged Cloud Radio Access Networks, 5G, SDN, IoT/M2M, and Green ICT*

C. Krishna Mohan  
Ph.D - IIT Madras  
*Associate Professor*  
*Research Areas: Video Content Analysis, Machine Learning, Sparsity Based Methods, Deep Learning*

Ch. Sobhan Babu  
Ph.D - IIT Bombay  
*Associate Professor*  
*Research Areas: Big Data Analytics*

Subrahmanyam Kalyanasundaram  
Ph.D - Georgia Tech, USA  
*Assistant Professor*  
*Research Areas: Theoretical Computer Science, Randomized Algorithms, Complexity Theory, Combinatorics*

M. V. Panduranga Rao  
Ph.D - IISc Bangalore  
*Associate Professor*  
*Research Areas: Theoretical Computer Science*

N. R. Arvind  
Ph.D - Institute of Mathematical Sciences, Chennai  
*Assistant Professor*  
*Research Areas: Graph theory, algorithms and combinatorics*

Vineeth N Balasubramanian  
Ph.D - Arizona State University, USA  
*Assistant Professor*  
*Research Areas: Machine Learning, Deep Learning, Computer Vision, Multimedia Computing*

Sathya Peri  
Ph.D - University of Texas at Dallas  
*Associate Professor*  
*Research Areas: Parallel Programming, Software Transactional Memory, Distributed Systems, Theory of Databases, Algorithm analysis, Networking algorithms*

Upadrasta Ramakrishna  
Ph.D - University of Paris and INRIA, Paris  
*Assistant Professor*  
*Research Areas: Compilers, High Performance Computing, Programming Languages*

Manish Singh  
Ph.D - University of Michigan, USA  
*Assistant Professor*  
*Research Areas: Databases, Data Mining, HCI, Information Retrieval, Information Visualization*
VISITING FACULTY

Kotaro Kataoka  
Ph.D - Keio University, Japan  
Visiting Assistant Professor  
Research Areas: Internet Architecture, Software-Defined Networking (SDN), Network Functions Virtualization (NFV), Network Operation, Post-Disaster Networking, Any Fun Applications

Kaushik Saha  
Director, Systems R&D, Samsung Research India, Delhi  
Teaching Subject: Pervasive Computing Lab

Antony Franklin  
Ph.D - IIT Madras  
Assistant Professor  
Research Areas: Wireless Networks, Edge Computing, 5G Networks and Systems

Poh Tiong San  
Asst. Manager, Allied Telesis Asia Pacific Pvt Ltd, Singapore  
Teaching Subject: Advanced Network Engineering

Maunendra Sankar Desarkar  
Ph.D - IIT Kharagpur  
Assistant Professor  
Research Areas: Recommendation Systems, Information retrieval, Social Network Analysis, Data Mining, Machine Learning

Sachin A. Desai  
Network Engineer, Allied Telesis, Bangalore  
Teaching Subject: Advanced Network Engineering

Manohar Kaul  
Ph.D - Aarhus University, Denmark  
Assistant Professor  
Research Areas: Scalable Machine Learning, Spatial Databases, Computational Geometry/Topology
Patents Filed


Publications

(In Peer-Reviewed Journals)


Publications

(In Peer-Reviewed Conferences)


Towards bandwidth efficient TDMA frame structure for voice traffic in MANETs, Naresh Vattikuti, Mallesham Dasari, Himanshu Sindhwal and Bheemarjuna Reddy Tamma, *IEEE International Conference on Electronics, Computing and Communication Technologies (CONECCT)*, Bangalore, 1-6 July 2015, 10.1109/CONECCT.2015.7383883.


Velocity Based Dynamic Flow Mobility in Converged LTE/Wi-Fi Networks, Prasanth Sharma, Thomas Valerian Pasca S, Naveen Kamath and Bheemarjuna Reddy Tamma, NCC, IIT Guwahati, March 2016.


Statistical Model Checking of Opportunistic Networks (with Shiraj Arora and Ankit Rathor), Proc. 11th Asian Internet Engineering Conference, 2015.


Hybrid Approach to Distributed Wi-Fi Performance Assessment for Multi-floor Structures, Deepak...


Efficient Fault-tolerance for Iterative Graph Processing on Distributed Dataflow Systems, Chen Xu, Markus Holzemer, Manohar Kaul, Volker Markl, IEEE International Conference on Data Engineering (ICDE), 2016.

New Lower and Upper Bounds for Shortest Distance Queries on Terrains, Manohar Kaul, Raymond Chi-Wing Wong, Christian S. Jensen, Proceedings of Very Large Databases (VLDB), 2015.


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Funded Research Projects 2015-16


Vineeth N Balasubramanian, Data Analytics for Security and Surveillance, Govt. of Telangana, August 2015, Rs. 20.0 Lakhs.

Vineeth N Balasubramanian, Conformal Prediction for Reliable Machine Learning, DST, December 2015, Rs. 9.8 Lakhs.

Ramakrishna Upadrasta, Scalable Compiler, Technologies for Modern Heterogeneous Architectures, AMD, 12K USD.

Ramakrishna Upadrasta, Compilers for Secure Architectures, ANURAG, DRDO, Rs. 10.0 Lakhs.

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Talks Given in International / National Conferences

Bheemarjuna Reddy, Radio Co-location Aware Channel Assignments for Interference Mitigation in Wireless Mesh Networks, IEEE ICACCI, Kochi, August 2015.


Kernel SVMs and Beyond, Workshop on Machine Learning, Central University of Rajasthan, Ajmer, 25 January 2016.

V. N. Balasubramanian, Deep Learning for Big Data,
CDAC Workshop on Hadoop for Big Data Analytics, Hyderabad, India, 8 January 2016.


Ramakrishna Upadrasta, Integrating Polly into LLVM Mainstream, HiPC Academic BoF on Compilation Research using LLVM, in Conjunction with HiPC 2015, Bangalore, 17 December, 2015.


Kotaro Kataoka, Moderator, Panel discussion: ICT Preparedness and Application to Natural Disaster, and Role of WIDE, WIDE Project Meeting, May 2016.

Kotaro Kataoka, IPv6 Networking, A Three-day Programme on Migrating to IPv6, Institute for Development and Research in Banking Technology, December 2015.


Invited Presentations

Invited Talk by Dr. Saurabh Joshi, Property-Driven Fence Insertion using Reorder Bounded Model Checking, 20 May 2015.

Invited talk by Dr. Sujit Gujar from Écolepolytechniquedeférale de Lausanne (EPFL), Mechanism Design for heterogeneous resource allocation with strategic agents 6 July.

Invited Talk by Prof. Kesav Nori on Vernacular Programming Languages And A Programming Paradigm Inspired by Panini's linguistic insights And Hoare's Grand Challenge.

Invited Talk by Dr. Mahima Agumbe Suresh on Tackling Communication and Control Challenges for Cyber Physical Infrastructures.

Invited Talk by Dr. Sunil Sherlekar on Basic Research, IP Protection & Startups: What We Should Do in India.

Invited Talk by Dr. Naresh Manwani on Learning in presence of noise.

Invited Talk by Dr. Rahul Nagpal on Energy Optimization for Clustered VLIW Processors.

Invited Talk by Prasanth Chatarasi on Polyhedral Optimizations of Explicitly Parallel Programs.

Invited talk by Dr. Parasara Duggirala on Dynamic Analysis of Cyber-Physical Systems.

Invited talk by Professor Ravi Vatrapu on Social Set Analysis: A Set-Theoretical Approach to Computational Social Science.

Invited Talk by Mainack Mondal: Managing user privacy in online social networks.

Invited Talk by Dr. Manish Gupta: Community-based outlier detection from networks.

Invited Talk by Dr. Balaji Raman: Stochastic Polly as an Analysis Pass in LLVM. Cash award of $5,500 as stipend for exposing the analysis of Polyhedral Compilation into the LLVM compiler. Student proposal accepted into the Google Summer of Code (GSoC) 2016, Ramakrishna Upadrasta and Utpal Bora.

Cutting-edge Research towards Next Generation ICT in Collaboration of India and Japan under SAKURA Exchange Program in Science, Japan Science and Technology Agency (JST), JPY 1,417,350 for Research Internship at The University of Tokyo, Japan for 4 IIT Hyderabad students, Duration, 28 February - 13 March 2016. Fund received and executed by The University of Tokyo, Kotaro Kataoka.

Workshops / Symposia Organised


Awards / Recognitions

Visvesvaraya Young Faculty Research Fellowship award for 2016-2020, Bheemarjuna Reddy Tamma.

Best Paper award at IEEE ICACCI 2015 conference for the paper titled Radio Co-Location Aware Channel Assignments for Interference Mitigation in Wireless Mesh Networks, Bheemarjuna Reddy Tamma.

The Heterogeneous Compilers for Modern Architectures team of IITH has been designated as a Collaborating Partner of Polly Labs (http://pollylabs.org), an international initiative to help promote Polyhedral Compilation in the LLVM Compiler, Ramakrishna Upadrasta.

Polly as an Analysis Pass in LLVM. Cash award of $5,500 as stipend for exposing the analysis of Polyhedral Compilation into the LLVM compiler. Student proposal accepted into the Google Summer of Code (GSoC) 2016, Ramakrishna Upadrasta and Utpal Bora.

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Invited Talk by Dr. Anand Mishra: Understanding Text in Scene Images.
Invited Talk by Prof. Rodney Van Meter on Networks of Networks of Quantum Repeaters.
Invited Talk by Chetan Verma on Automated Web Video Classification.
Invited Talk by Prof. Sanjay Rajopadhye: ‘Simplifying Reductions’.
Internet: Past, Present and Future - Focusing on The Other Billion -, Prof. Kilnam Chon, Keio University / KAIST, 29 December 2015 at IIT Hyderabad.
Hop-by-Hop Reliable, Parallel Message Propagation for Intermittently Connected Mesh Networks, Prof. Hideya Ochiai, The University of Tokyo, 28 September 2015 at IIT Hyderabad.
Cooperative ITS to Support Autonomous Driving, Prof. Manabu Tsukada, The University of Tokyo, 28 September 2015 at IIT Hyderabad.
Networks of Networks of Quantum Repeaters, Prof. Rodney Van Meter from Keio University, 25 September 2015 at IIT Hyderabad.
The Polyhedral Model: Past Present and Future, Prof. Sanjay Rajopadhye, Professor, Colorado State University, USA, 3 August, 2015.
High performance parallel computing software: from basics to exa-scale technology, Prof. Reiji Suda, University of Tokyo, Japan, 4 November, 2015.
The Latent Power of Absurd Ideas aka Robust Query Processing, Professor Jayant Haritsa, Professor at Indian Institute of Science (IISc), Bengaluru, India, 4 November 2015.
High Quality Search: Ranking Models and System Design, Dr. Jiaul Paik, Postdoctoral researcher at the University of Maryland, College Park, USA, 26 August 2015.

Other Events Organised
Connect IITH 2015, August 25th, 2015 http://friendship.iith.ac.in/?page_id=324
IITH-UoT Student Meeting, September 28th-29th, 2015 http://friendship.iith.ac.in/?page_id=427
Japanese Lectures for FRIENDSHIP Scholars, Instructor: Yuka Kataoka, Duration: 1st batch - 3 days in July, 2nd batch - 3 days in August, 2015
i.schoool Workshop on Experience Design in India, Collaboration with i.schoool @ Univ of Tokyo, 20-21 Feb 2016
Special Lecture by Prof. Kilnam https://goo.gl/photos/NKrQZ5nSwXhivs6Y9
Special Lecture by Prof. Rod https://goo.gl/photos/cFCH8m1VbCx2mvSi6
IITH-UoT Student Meeting, Special Lectures by Profs. Ochiai and Tsukadahttps://goo.gl/photos/cPBhETEWaEGLCnsX8; https://goo.gl/photos/dzonP6xk5YeAkptu5
Connect IITH and other meetings https://goo.gl/photos/xWwvtW9fyijfSNNpbA.
LA1210 by Yuka Kataokahttps://goo.gl/photos/y1T8LZCKunzYz1Bt8https://goo.gl/photos/pbLKyyBTquAJRvH56.
Japanese Lectures for FRIENDSHIP Scholarshttps://goo.gl/photos/SFQsJ867d1TM8Mz79https://goo.gl/photos/BshVFAdrym5Xpc458
The youngest department at IIT Hyderabad, Design currently offers two postgraduate degrees: Master of Design (MDes) and Ph.D in Design. MDes is a full-time two-year program providing a broad-based understanding of design along with student-driven specializations in varied domains. The MDes in Visual Design, began in July 2014, focuses on creative thinking, building elements and history of Design from a predominantly visual perspective. Additional specialized courses allow students to diversify into domains like interaction design, experience design, moving images, contemporary photography, design education, design for well-being, collaborative design, urban environments, managing creative industries, and mobility design.

Ph.D in Design provides a unique platform to pursue practice-based and practice-led research in art, design, culture, creative practices and related areas. The doctoral program aims to infuse the practice-oriented spirit into research in/through/on design, alongside other more traditional modes of doing research in design. The department plans to intervene creatively in the space between technologies and people. This involves engaging in key emerging areas such as: adapting technology to socio-cultural needs, enabling of rights-based and equitable development work, user-operated technologies, participatory and collaborative design, professional ethics / sustainability, product systems and services, design and education, wellness and crowd-sourced design.

In 2016, the Department of Design has launched a Design Innovation Centre with the support of Ministry of Human Resource Development, which focuses on design research and design innovation. A Current project under the Design Innovation Centre is Digital preservation of tangible and intangible Heritage.
Deepak John Mathew  
Ph.D - MS University of Baroda  
Associate Professor & HoD  
Research Areas: Photography, Elements of design, Aesthetics, History of Design

Prasad S. Onkar  
Ph.D - IISc Bangalore  
Assistant Professor  

Neelakantan P K  
Ph.D ongoing at IIT Bombay  
Assistant Professor  
Research Areas: Architectural Design
Publications (In Peer-Reviewed Journals)


Publications (In Peer-Reviewed Conferences)

Immersive virtual reality to enhance the spatial awareness of students, Fabin Rasheed, Prasad Onkar, and Marisha Narula, 2015, *proceedings of the 7th International Conference on HCI*, IndiaHCI, 17-19 December 2015 (IndiaHCI’15).

Invited Lectures

Deepak John Mathew, ‘Documentary Photographs,’ workshop at M.S. University of Baroda, 2015.


Deepak John Mathew, Invited Artist (group show) at Birla Academy of Art and Design, 2015.

Workshops / Symposiums Organised


‘How Designers Think: Product Design at the Base and the Top of the World Income Pyramid,’ by Santosh Jagtap, Assistant Professor of Industrial Design in the Department of Design Sciences, Lund University, Sweden, 3 September 2015.

‘To exclaim or to explain!’ by Sameer Sahasrabudhe, Researcher, Tata Institute of Social Science, Mumbai, 5 October 2015.

‘Meaning and Design: On Names,’ by Prof. Madhava Prasad, 10 February 2015.

‘Sculpture and Mural,’ workshop and seminar by Jagruti Dutta, renowned sculptor from Baroda, 2015.

‘Cinema,’ workshop and seminar, Sanu John Varghese, camera person from Bollywood cinema, 2015.


‘Script writing and Story-telling in graphic novels,’ Prof. Prakash Moorthy, Professor and HOD, Srishti Institute of Art, Design & Technology, Bangalore, 2016.


‘Calligraphy,’ by Prof. Santosh, J.J. School of Art, Mumbai, 2016.

Awards / Recognitions

Shijith V.P., Ph.D. Guide: Dr. Deepak John Mathew.

Photography Exhibition at Lalitkala Akademy Art Galley, Kozhikode, May, 2015, *proceedings of the 7th International Conference on HCI*, IndiaHCI, 17-19 December 2015 (IndiaHCI’15).

Invited Lectures

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‘Script writing and Story-telling in graphic novels,’ Prof. Prakash Moorthy, Professor and HOD, Srishti Institute of Art, Design & Technology, Bangalore, 2016.


‘Calligraphy,’ by Prof. Santosh, J.J. School of Art, Mumbai, 2016.
Talk by Dr. Mathai Fenn on visual imagination

Seminar Talk on Typography by Rupesh Vyas

Seminar talk by Anika from Germany

Seminar talk by Sahasrabudhe on interaction design
Clay modeling workshop by Jagruti Dutta.

Power of Hands - photo essay by Deepak John Mathew

Action Drawing Organised by the Department of Design

Action drawing class by Deepak John Mathew

Prahlat Tippaniya at Design department
Photo workshop by Deepak John Mathew

Exhibition by DJM in Ahmedabad

Birla Akademi Exhibition by Deepak John Mathew

Jayachandran palazhi - lecture demo at Design department
The Department of Electrical Engineering (EE) at IIT Hyderabad offers a vibrant environment for undergraduate, postgraduate education and research in many areas of Electrical Engineering. This is one of the earliest departments started in IITH. Faculty members of the department are engaged in cutting edge technology research and also very passionate about teaching. The department currently has 18 faculty, 3 staff and 328 (B.Tech - 178, M.Tech - 89 and Ph.D - 61) students. The broad areas of research which are the focus of the department are as follows:

- **Microelectronics and VLSI (Micro):** The main thrust of this group is on affordability, low power and portability. The goal is to push the limits of silicon in achieving the above as well as being on the frontier of new viable technologies. The research areas that are focused on are 3-D ICs, Analog/RF IC design, Micro scale Energy Harvesting, Pervasive Computing, Data acquisition systems, Biosensors development.

- **Communications and Signal Processing (CSP):** The main research areas of this group are Cooperative Communication, Speech and Multi-Media Signal Processing, Source Coding, Space-Time Coding, Information Theory, Cognitive Radio/Radar, Cyber Physical Systems, Image and Video Quality Assessment.

- **Power Electronics and Power Systems (PEPS):** The main research areas of this group are Smart Grids, Micro Grids, Power System Dynamics, Multilevel Inverters, Switched Mode Power Conversion, Wide Area Monitoring, Protection and Control, Information Technology Architectures, Common Information Model (CIM).

- **Systems and Control (Syscon):** The main research areas of this group are Identification and Estimation, Fault Diagnosis, Micro Grid/ Smart Grid, Advanced Control applications, Statistical Process Monitoring and Control.
Mohammed Zafar Alikhan
Ph.D - IISc Bangalore
Professor & HoD
Research Areas: Space-time coding, Space-time signal processing, Joint Baseband-RF optimization, Software defined radio, Cognitive radio and cyber physical systems

K. Siva Kumar
Ph.D - IISc Bangalore
Assistant Professor
Research Areas: Multilevel inverters, open-end winding induction motor drives, Microgrids, Power quality and control

UB Desai
Ph.D - Johns Hopkins, USA
Professor
Research Areas: Wireless Communication and Signal Processing

Ketan Detroja
Ph.D - IIT Bombay
Associate Professor
Research Areas: Advanced Process Control, Quality control, Fault detection and diagnosis, Co-operative Control

Vaskar Sarkar
Ph.D - IIT Bombay
Assistant Professor
Research Areas: Power Market, Demand Side Management, Wide Area Monitoring and Control, Microgrid, Grid Integration of PV system

Soumya Jana
Ph.D - UIUC, USA
Assistant Professor
Research Areas: Biomedical image analysis, Telecardiology, Smart camera networks, Multimedia signal processing, 3D/4D media content generation, Real time information theory, Stochastic spatio-temporal modeling, Monte Carlo inference

Amit Acharyya
Ph.D - University of Southampton, UK
Assistant Professor

Ashudeb Dutta
Ph.D - IIT Kharagpur
Assistant Professor
Research Areas: Analog and Radio Frequency circuit design, Energy Harvesting and Biomedical circuit design

Sri Rama Murty Kodukula
Ph.D - IIT Madras
Assistant Professor
Research Areas: Signal Processing, Speech Analysis, Pattern Recognition and Deep Learning

Vaskar Sarkar
Ph.D - IIT Bombay
Assistant Professor
Research Areas: Power Market, Demand Side Management, Wide Area Monitoring and Control, Microgrid, Grid Integration of PV system

Sri Rama Murty Kodukula
Ph.D - IIT Madras
Assistant Professor
Research Areas: Signal Processing, Speech Analysis, Pattern Recognition and Deep Learning
<table>
<thead>
<tr>
<th>Name</th>
<th>Degree Institution</th>
<th>Title</th>
<th>Research Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>G. V. V. Sharma</td>
<td>Ph.D - IIT Bombay</td>
<td>Assistant Professor</td>
<td>Research Areas: Communication, Signal Processing, Photonics, Circuits</td>
</tr>
<tr>
<td>Sumohana S. Channappayya</td>
<td>Ph.D - The University of Texas at Austin, USA</td>
<td>Assistant Professor</td>
<td>Research Areas: Image and Video Quality Assessment, Multimedia Communication, Biomedical Image Processing</td>
</tr>
<tr>
<td>Shiva Ramakrishna Vanjari</td>
<td>Ph.D - IISc, Bangalore</td>
<td>Assistant Professor</td>
<td>Research Areas: Biosensors, BioMEMS, CMOS Sensors</td>
</tr>
<tr>
<td>Ravikumar Bhimasingu</td>
<td>Ph.D - IISc Bangalore</td>
<td>Assistant Professor</td>
<td>Research Areas: Computer-aided power system analysis and modeling, AI techniques applications for power systems security improvement, Power System protection and optimization, Distribution system automation, Wide Area Monitoring, Protection and Control, Protection and Control of Micro Grids</td>
</tr>
<tr>
<td>Yemula Pradeep Kumar</td>
<td>Ph.D - IIT Bombay</td>
<td>Assistant Professor</td>
<td>Research Areas: Smart Grids, Demand Response, Interoperability, IT Architectures for Power Systems, Renewable Energy</td>
</tr>
<tr>
<td>Sushmee Badhulika</td>
<td>Ph.D - University of California, USA</td>
<td>Assistant Professor</td>
<td>Research Areas: Nanoelectronics, flexible electronics, paper based electronics, electrochemical sensors</td>
</tr>
<tr>
<td>Abhinav Kumar</td>
<td>Ph.D - IIT Delhi</td>
<td>Assistant Professor</td>
<td>Research Areas: Resource allocation, Wireless Communications and Networking, Device-to-Device Communications, LTE-U, IoT, Energy efficient communications</td>
</tr>
<tr>
<td>Swati Gupta</td>
<td>Ph.D - University of Strathclyde, UK</td>
<td>Assistant Professor</td>
<td>Research Areas: Organic thin-film transistors, Organic solar cells, Flexible electronics, Transition metal oxide thin-film transistors</td>
</tr>
<tr>
<td>Kaushik Nayak</td>
<td>Ph.D - IIT Bombay</td>
<td>Assistant Professor</td>
<td>Research Areas: Device Electronics, Nano-electronics, Physical and Wave Electronics</td>
</tr>
<tr>
<td>G. V. V. Sharma</td>
<td>Ph.D - IIT Bombay</td>
<td>Assistant Professor</td>
<td>Research Areas: Communication, Signal Processing, Photonics, Circuits</td>
</tr>
<tr>
<td>Sumohana S. Channappayya</td>
<td>Ph.D - The University of Texas at Austin, USA</td>
<td>Assistant Professor</td>
<td>Research Areas: Image and Video Quality Assessment, Multimedia Communication, Biomedical Image Processing</td>
</tr>
<tr>
<td>Shiva Ramakrishna Vanjari</td>
<td>Ph.D - IISc, Bangalore</td>
<td>Assistant Professor</td>
<td>Research Areas: Biosensors, BioMEMS, CMOS Sensors</td>
</tr>
<tr>
<td>Ravikumar Bhimasingu</td>
<td>Ph.D - IISc Bangalore</td>
<td>Assistant Professor</td>
<td>Research Areas: Computer-aided power system analysis and modeling, AI techniques applications for power systems security improvement, Power System protection and optimization, Distribution system automation, Wide Area Monitoring, Protection and Control, Protection and Control of Micro Grids</td>
</tr>
<tr>
<td>Yemula Pradeep Kumar</td>
<td>Ph.D - IIT Bombay</td>
<td>Assistant Professor</td>
<td>Research Areas: Smart Grids, Demand Response, Interoperability, IT Architectures for Power Systems, Renewable Energy</td>
</tr>
<tr>
<td>Sushmee Badhulika</td>
<td>Ph.D - University of California, USA</td>
<td>Assistant Professor</td>
<td>Research Areas: Nanoelectronics, flexible electronics, paper based electronics, electrochemical sensors</td>
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<tr>
<td>Abhinav Kumar</td>
<td>Ph.D - IIT Delhi</td>
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<td>Research Areas: Resource allocation, Wireless Communications and Networking, Device-to-Device Communications, LTE-U, IoT, Energy efficient communications</td>
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<td>Research Areas: Organic thin-film transistors, Organic solar cells, Flexible electronics, Transition metal oxide thin-film transistors</td>
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<tr>
<td>Kaushik Nayak</td>
<td>Ph.D - IIT Bombay</td>
<td>Assistant Professor</td>
<td>Research Areas: Device Electronics, Nano-electronics, Physical and Wave Electronics</td>
</tr>
</tbody>
</table>
DISTINGUISHED VISITING FACULTY

Mathukumalli Vidyasagar
The University of Texas at Dallas
Teaching Subjects: EE5420 - Introduction to Compressed Sensing, EE5430 - Compressed Sensing, EE5410 - Nonlinear Control Theory

VISITING FACULTY

Y Ramesh
Electrical & Computer Engineering, The University of Texas at Austin

S. K. Nandy
Supercomputer Education and Research Centre, Indian Institute of Science, Bengalore, India
CEP Courses Organised

Mohammed Zafar Ali Khan, GIAN course on Contemporary Radar System Design and Signal Processing by Prof. Amit Mishra, University of Cape Town

Patents Filed

Sreekanth Dama, Kiran Kuchi, Abhinav Kumar, Thomas, Bheemarjun Reddy Tamma, Method for Accessing a Channel in a Wireless Communication Network, Provisional, 689/CHE/2015, 7 April 2015.


Kiran Kuchi, Method and System for Generalized-DFT-precoded-OFDM to Design a Waveform with Low PAPR, Provisional, 2196/CHE/2015, 29 April 2015.


Kiran Kuchi, Method and System for Pilot Transmission with Low Peak to Average Power, Provisional, Application No 3316/CHE/2015, 30 June 2015.


Thomas V.S., Bheemarjun Reddy Tamma, Antony Fanklin, Traffic steering in aggregated LTE-Wi-Fi Networks by 4th September, Provisional, 4705/ CHE/2015, 4 September 2015.

Sreekanth Dama, Thomas Valerrian Pasca, Vanlin Sathya, Bheemarjun Reddy Tamma, A RACH Procedure for C-IoT Devices, Provisional, 24 October 2015.

Kiran Kuchi, Method and Apparatus for Synchronization, Provisional, 5712/CHE/2015, 5 October 2015.

Kiran Kuchi, Method and System of Pre-Coding a Waveform for Synchronization in A Communication Network, Indian patent, 201641000827, 8 January 2016.

Kiran Kuchi, Method and System for Transmitting and Receiving a Waveform with Low PAPR, Indian patent, 201641000865, 9 January 2016.

Kiran Kuchi, Method and apparatus for Reducing Phase Discontinuities in A Tone Phase Shift Keying, Provisional patent, application 201641005999, 22 February 2016.

Kiran Kuchi, Method and System of Pre-Coding a Waveform in A Communication Network, Provisional patent application, 201641006273, 23 February 2016.


Kiran Kuchi, Method and System of Pre-Coding a Waveform for Synchronization in a Communication Network, Indian patent, 201641000827, 8 January 2016.

Kiran Kuchi, Method and System for Transmitting and Receiving a Waveform with low PAPR, Indian patent, 201641000865, 9 January 2016.

Kiran Kuchi, Method and Apparatus for Reducing Phase Discontinuities in A Tone Phase Shift Keying, Provisional, 201641005999, 22 February 2016.

Kiran Kuchi, Method and System of Pre-Coding a Waveform in a Communication Network, Provisional, 201641006273, 23 February 2016.


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Kiran Kuchi, Method and Apparatus for Reducing Phase Discontinuities in A Tone Phase Shift Keying, Provisional, 201641005999, 22 February 2016.

Kiran Kuchi, Method and System of Pre-Coding a Waveform in a Communication Network, Provisional, 201641006273, 23 February 2016.

Kiran Kuchi, Method and System of Pre-Coding a Waveform for Synchronization in a Communication Network, Indian patent, 201641000827, 8 January 2016.


Kiran Kuchi, Method for synchronization using single tone pilots, Provisional Application, 201641000785, 8 January 16.

Kiran Kuchi, Method for synchronization using single tone synchronization pilots, Provisional to Complete Application, 201641000785, 14 January 2016.

Books / Chapters


Publications
(In Peer-Reviewed Journals)


A simple and novel way of maintaining constant temperature in microdevices, V. Duryodhan, A. Singh, S. G. Singh and A. Agrawal, Scientific Reports, 6, 18230, 2016.


Ultra-thin Ti passivation mediated breakthrough in high quality Cu-Cu bonding at low temperature


Significance of analytic phase of speech signals in speaker verification, Karthika Vijayan, P. R. Reddy and K. Sri Rama Murty, 81, 54-71 (2016).


Facile non-thermal plasma based desorption of self assembled monolayers for achieving low temperature and low pressure Cu–Cu thermo-compression bonding, Tamal Ghosh, K.


Publications (In Peer-Reviewed Conferences)


A 1.5mA, 2.4GHz ZigBee/BLE QLMVF Front-End Receiver with Split TCAs in 180nm CMOS, Seshai Sairam Regulagadda, Purushothama Chary, Rizwan Shaik Peerla, Mohd Abdul Naseeb, A. Acharyya, Rajalakshmi P and Ashudeb Dutta, 29th International Conference on VLSI Design, Kolkata, India, 2016.


A 2µW Biomedical Frontend with ADC for Self-powered u-Healthcare Devices in 0.18um CMOS, Pankaj Kumar Jha, Pravanjan Patra, Jairaj Naik, Ashudeb Dutta, A. Acharyya, Shiv Govind Singh and P. Rajalakshmi, IEEE NEWCAS 2015, Grenoble, France, 7-10 June.


Room temperature desorption of Self Assembled Monolayer from Copper surface for Low Temperature & Low Pressure Thermo compression bonding, Tamal Ghosh, E. Krishnamurthy, Ch. Subrahmanyam V. Siva Rama Krishna, A. Dutta S G Singh, 65th IEEE Electronic Components and Technology Conference (ECTC), San Diego, California, USA 26-29 May 2015.


Optimized ultra-thin Ti Passivation leads high quality fine pitch bump less Cu-Cu Wafer-on-Wafer bonding at 175° C, Asisa Kumar Panigrahi, Satish Bonam, Tamal Ghosh, Siva Rama Krishna Vanjari and Shiv Govind Singh, 18th International Workshop on Physics of Semiconductor Devices (IWPSD), IISc, Bangalore, 2015.

Highly sensitive electrospun multiwalled carbon nanotubes embedded zinc oxide nanowire based

Highly-sensitive label-free differential pulse voltammetric immunosensor for diagnosis of infectious diseases based on electrospun copper doped ZnO nanofiber biosensing platform, Brince Paul K, Sanni Kumar, Suryasnata Tripaty, Vikrant Singh, Siva Rama Krishna Vanjari, Shiv Govind Singh, 26th Anniversary World Congress on Biosensors 2016, Gothenburg, Sweden.


Highly Conductive Carbon doped Zinc Oxide Electrospun nanofibers for sensing applications, Brince Paul K, Durgaparaksh, Shiv Govind Singh and Siva Ramakrishna Vanjari, 18th International Workshop on The Physics of Semiconductor Devices (18th IWPSD), IISc, Bangalore, India, 7-10 December 2015.

Impact of multi-Vt technique in eliminating thermal runaway during testing of 3D chips, Design Automation and Test in Europe, S. Potluri, A. Satya Trinadh, Sobhan Babu Ch., Shiv Govind Singh and V. Kamakoti, 3D workshop, IEEE, Grenoble, France, 2015.


Fabrication of SU-8 Based Capacitive Micromachined Ultrasonic Transducer for Low Frequency Therapeutic Applications, Jose Joseph, Shiv Govind Singh and Siva Rama Krishna V, IEEE EMBS Conference 2015, Italy.


A 2μW biomedical frontend with ΔΣ ADC for self-powered U-healthcare devices in 0.18μm
Real time half duplex voice calling over IEEE 802.15.4/Zigbee standard using Android platform, B. Sree Charan Teja Reddy, Shah Palash Manish Bahl, N. Sai Teja and G. V. V. Sharma, COMSNETS 2016, Bengaluru.


Distributed Compressed Sensing for Photo-Acoustic Imaging, K. J. Francis, P. Rajalakshmi, S. S. Channappayya, Proc. of IEEE ICIP 2015, Quebec City, Canada, September 2015.


Room temperature desorption of Self Assembled Monolayer from Copper surface for low temperature and low pressure thermocompression bonding, Tamal Ghosh, E Krishnamurthy, Ch Subrahmanyan, Asudeb Dutta, Siva Rama Krishna Vanjari, Shiv Govind Singh, IEEE 65th Electronic Components and Technology Conference (ECTC), 2200-2204, May 26-29, SanDiego, USA.

Low temperature, low pressure CMOS compatible Cu-Cu thermo-compression bonding with Ti passivation for 3D IC integration, Asisa Kumar Panigrahi, Satish Bonam, Siva Rama Krishna Vanjari, Shiv Govind Singh, IEEE 65th Electronic Components and Technology Conference (ECTC), SanDiego, USA, 2200-2204, 26-29 May.


Refined Hybrid Microgrid Architecture for the Improvement of Voltage Profile, Pinjala

Fast Identification of Fault Location with Fault Passage Indicators under Network Reconfiguration, Pradeep Yemula and Viplav Chaitanya, India Smart Grid Week (ISGW) 2015, March 2015.


Survey of Smart City Frameworks, Charan Teja S, Pradeep Kumar Yemula, India Smart Grid Week (ISGW) 2016, March 2016.


Base Station Switching WithCoMP in Cellular Networks, Yoghitha Rand A. Kumar, NCC 2016.


---

**Funded Research Projects 2015-16**

Mohammed Zafar Alikhan, TVWS Trials Deity, 18 March 2015, Rs. 30.9 Lakhs.


Amit Acharyya, Design of FPGA based AFDX switch and implementation on NETFPGA, RCI, DRDO, December 2015, Rs. 9.9 Lakhs.

Kuchi Kiran Kumar, 5G Research and Building Next Gen Solutions for Indian Market, Deity, 24 September 2015, Rs. 637 Lakhs.

S. Badhulika, Low cost, low power water purification technique using Graphene based electrode; SERB, DST; Government of India, 2015-2018, Rs. 32 lakhs.

Kuchi Kiran Kumar, Converged Cloud Communication Technologies, Deity, 27 June 2014, Rs. 95.0 Lakhs.

G. V. V. Sharma, Pandit Madan Mohan Malaviya National Mission on Teachers and Training, MHRD, December 2015, Rs. 100.0 Lakhs.

---

**Talks Given In International / National Conferences**


Detroja K. P., Microgrid Economy Through Optimal Design, the 2nd Indian Control Conference, Hyderabad, 4-6 January 2016.

Detroja K. P., Model-Based Stator Interturn Short-circuit Fault Detection and Diagnosis in Induction Motors, the 7th International Conference on Information Technology and Electrical Engineering, Chiang Mai, 29-30 October 2015.


Prioritization of NB-IoT in TDD bands, 3GPP TSG-RAN WG1 NB-IoTAdhocR1-160174, Budapest, Hungary,


Coexistence Results for LAA DL only and Wi-Fi DL+UL, 3GPP TSG-RAN WG1#81 R1-153404, Japan, Source: IITH, 21 May 2015.


Pradeep Yemula, Delivered Master Tutorial session on Introduction to Smart Grids in the India Smart Grid Week 2015, March 2015.

Pradeep Yemula, Delivered Master Tutorial session on Introduction to Smart Grids in the India Smart Grid Week 2016, March 2016.

Pradeep Yemula, Delivered Lecture in faculty development program on Research Challenges in Smart Grids on the topic of Power System Control Center, EMS SCADA to Smart Grid Applications, 7 November 2015.


Kiran Kuchi, US-India Smart and Connected Communities Workshop, IIT Delhi, 9-11 June 2016.


P. Rajalakshmi, ISDF 2016.

Awards / Recognitions
Visvesvaraya Young Faculty Fellowship Award from the Department of Electronics and Information Technology, Ministry of Communications and Information Technology, Government of India for year 2015-16, Amit Acharyya.

Young Engineers Award 2015-16, The Institution of Engineers (IEI) in Electrical Engineering discipline, S. Badhulika.

The Young Engineer Award in Electronics and Telecommunication Engineering, Institution of Engineers, India (IEI) in 2015, Amit Acharyya.

Visiting Research Fellow in the School of Electronics and Computer Science in the University of Southampton, UK (2015-16), Amit Acharyya.

Fellowship from the University of Liverpool, UK in Summer, 2015, Amit Acharyya.

Cadence design contest winner (2nd place) : 2015, Ashudeb Dutta.

IEEE Member, Ravikumar Bhimasingu.

Reviewer for IEEE Transactions on Power Delivery, Ravikumar Bhimasingu.

Reviewer for IET Generation, Transmission & Distribution, Ravikumar Bhimasingu.

Reviewer for Electric Power Components and Systems, Ravikumar Bhimasingu.

Review for the IEEE Transactions on Power Electronics, Ravikumar Bhimasingu.

Reviewer for Ain Shams Engineering Journal, Ravikumar Bhimasingu.

Best Paper Award (honorable mention) in COMSNETS 2016, Bangalore, India, Abhinav Kumar.

Workshops / Symposiums Organised

Pradeep Yemula, Real-Time Contingency Analysis in Power Control Centers, Sarma Nuthalapati, Electricity Reliability Council of Texas (ERCOT), USA, 16 November 2015.

Other Events
Workshop on Digital Design through Arduino and Matrix Analysis through Octave, conducted jointly with the IEEE Comsoc/SP chaper, Hyderabad, at IIT Hyderabad.
The Department of Liberal Arts (LA) at IIT Hyderabad is a leading center for the study of a highly diverse range of subjects including Anthropology, Cultural Studies, Economics, English, Sociology and Linguistics. Unique in its constitution and vision, the department of Liberal Arts at IIT Hyderabad strives to pursue excellence in teaching and research to benefit students, academics and the wider society.

The primary focus of the Department of Liberal Arts at IIT Hyderabad is to produce world-class research in the broad fields of humanities, social sciences. The broad areas of ongoing research in the department are Economic growth, Macroeconomics, Monetary economics, International finance, Gender studies, Cultural studies, Clinical Psychology, Positive Psychology, Literary Theory, Rhetoric and Composition, Modernist Fiction, Literature and the Visual Arts, Health Psychology, Psycho-oncology, Cultural Psychology, Indigenous Healing, Organizational behaviour, Social psychology, Medical Anthropology, Anthropology of the Media, Linguistics, and Cognition.

With a congregation of excellent faculty having expertise on diverse range of subjects, Liberal Arts at IIT Hyderabad is devoted towards the development of teaching and research that has both academic and practical relevance. The department of Liberal Arts offers academic programs for Ph.D., M.Phil and Minor Economics. The department also offers LA electives to the B.Tech program.
<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Role</th>
<th>Research Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Badri Narayan Rath</td>
<td>Ph.D - ISEC, Bangalore</td>
<td>Associate Professor &amp; HoD</td>
<td>Research Areas: Econometrics, Economic Growth, and Industrial Economics</td>
</tr>
<tr>
<td>Amrita Deb</td>
<td>Ph.D - BHU, Varanasi</td>
<td>Assistant Professor</td>
<td>Research Areas: Positive psychology, clinical psychology, personality psychology</td>
</tr>
<tr>
<td>Indira Jalli</td>
<td>Ph.D - Hyderabad Central University</td>
<td>Assistant Professor</td>
<td>Research Areas: nation and culture</td>
</tr>
<tr>
<td>Srirupa Chatterjee</td>
<td>Ph.D - IIT Kanpur</td>
<td>Assistant Professor</td>
<td>Research Areas: Contemporary and Multiethnic American Fiction</td>
</tr>
<tr>
<td>Prabheesh K.P.</td>
<td>Ph.D - IIT Madras</td>
<td>Assistant Professor</td>
<td>Research Areas: International Finance, Monetary economics, Applied econometrics</td>
</tr>
<tr>
<td>Mahati Chittem</td>
<td>Ph.D - University of Sheffield, UK</td>
<td>Assistant Professor</td>
<td>Research Areas: Health Psychology, Medical Psychology, Psycho-oncology</td>
</tr>
<tr>
<td>Shubha Ranganathan</td>
<td>Ph.D - IIT Bombay</td>
<td>Assistant Professor</td>
<td>Research Areas: Cultural psychology, qualitative research methods, gender and mental health, public health in India</td>
</tr>
<tr>
<td>N. Haripriya</td>
<td>Ph.D - Syracuse University - NY, USA</td>
<td>Assistant Professor</td>
<td>Research Areas: Anthropology of Media, Health, Gender, Globalisation</td>
</tr>
<tr>
<td>Nandini Ramesh Sankar</td>
<td>Ph.D - Cornell University, USA</td>
<td>Assistant Professor</td>
<td>Research Areas: 20th-Century British and American Poetry, Modernist Fiction, Literature and the Visual Arts, Literature and Ethics</td>
</tr>
<tr>
<td>M. P. Ganesh</td>
<td>Ph.D - Cornell University, USA</td>
<td>Assistant Professor</td>
<td>Research Areas: Work Team Dynamics, Self-Leadership, Mentoring, Virtual and Cross-Cultural Collaborations, Eco-Friendly Behaviours</td>
</tr>
<tr>
<td>Prakash Chandra Mondal</td>
<td>Ph.D - IIT Delhi</td>
<td>Assistant Professor (On contract)</td>
<td>Research Areas: Theoretical Linguistics, Philosophy of Language, Cognitive Science</td>
</tr>
<tr>
<td>Nimmi Rangaswamy</td>
<td>Ph.D - University of Mumbai</td>
<td></td>
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</tr>
<tr>
<td>Paresh Kumar Narayan</td>
<td>Ph.D - Monash University, Australia</td>
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</tr>
</tbody>
</table>
Books / Chapters

Publications
(In Peer-Reviewed Journals)
Illness experiences, collective decisions, and the therapeutic encounter in Indian oncology. Qualitative Health Research, A. Broom, M. Chittem, V. Bowden, N. Muppavaram, S. Rajappa Doi: 1049732316648125.
From Victimhood to Survivor-Hood: Reflections on Women’s Agency in Popular Films on Sex Trafficking in India, N. James and S. Ranganathan, Psychological Studies, 61 (1), 76-82 (2016).

Publications
(In Peer-Reviewed Conferences)
Trade Diversification and TFP growth in case of South Asian Region, Badri Narayan Rath, 52nd Annual Conference of Indian Econometrics Society, IIM Kozhikode, 5-7 January, 2016.
The Dynamic Linkage between Exchange Rate, Stock Price and Interest Rate in India, Badri Narayan Rath, Applied Financial Modelling Conference, Deakin University, Melbourne, 4 February, 2016.
Positive psychology and HRM, Amrita Deb, Second International Conference on Stress Management Professional, Osmania University, Hyderabad, November 2015.
Macroeconomic Policy: Monetary Policy and Fiscal Policy, K.P. Prabheesh, Centre for Economic and Social Studies (CESS), Hyderabad, 16-17 November 2015.
How can we support you, let us count the ways: The challenges faced and resources available to ECPPs in limited-resource, Chittem, M., & Odiyo, P., as part of a symposium presented by the Special Interest Group of Early Career Psycho-oncology Professionals within the International Psycho-oncology Society (IPOS) during the joint World Congress by IPOS and APOS at Washington, DC, USA (2015).

Funded Research Projects 2015-16
Mahati Chittem, The changing landscapes of survivorship: A psychosocial study of cancer from a multi-stakeholder perspective, University of Queensland, Brisbane, Australia, July 2015, 0.86 Lakhs.

Seminars Organised
Comparative Literature and Liberal Arts: Deciphering the Theoretical Interrelatedness and the Pragmatic Extensions, Dr. Amith Kumar P. V., Department of Comparative Literature and India Studies at the English and Foreign Languages University, Hyderabad, 20 January 2016.
Cognition of Bilingualism, Dr. Ramesh Kumar Mishra, Center for Neural and Cognitive Sciences, University of Hyderabad, 17 February 2016.

The Stock Markets and Indian Budgets, Aam Aadmi, Dr. Jayan Jose Thomas, Department of Humanities and Social Sciences, Indian Institute of Technology Delhi, 8 March 2016.

Cultivating Distress: Farmer Suicides and Public Policy Failure in India, Dr Nanda Kishore Kannuri, Indian Institute of Public Health (IIPH), Hyderabad, 16 March 2016.

The Akṣara in Brāhmic Writing Systems, Dr. Gautam Sengupta, Center for Applied Linguistics and Translation Studies and the Center for Neural and Cognitive Sciences, University of Hyderabad, 30 March 2016.

Disciplines in Dialogue: Preliminary Notes concerning a Conversation between Disability Studies and Medical Humanities. Dr. Hemachandran Karah, Department of Humanities and Social Sciences, Indian Institute of Technology Madras, 13 April 2016.

Talks Given In International / National Conferences


Workshops / Symposiums Organised
Two-day IPOS Academy international workshop on Psychological Distress in Cancer: Identifying it and Providing Support, Chittem, M., January 2016.

Awards & Recognitions
University of New South Wales Collaboration Award sponsored by University of New South Wales, Sydney, Australia, Mahati Chittem.

Health and Behavior International Collaborative Award sponsored by the Society for Health Psychology (American Psychological Association Division 38), Mahati Chittem.
The Department of Materials Science and Metallurgical Engineering (MSME) at IITH started in 2008 with the vision “Atoms to Applications”, aiming to be a globally recognized centre of excellence in materials research, translating fundamental understanding into development of innovative, sustainable and environment-friendly technologies and products for social needs. Currently, MSME has eight faculty members with research interests spanning across various disciplines of structural, functional and computational materials science. One of the recent focuses of the cumulative and collaborative effort of the department is to understand the materials genome by correlating composition, structure, processing, characterization and properties (‘The MSME Pentagon’).

The MSME department at IITH offers unique innovative courses, which are unparalleled with courses at other IITs. Research programs are closely designed with national research laboratories and industries. Currently, MSME has over 30 Ph.D and 14 MTech students working in fundamentals to advanced and emerging areas, some of which are thermo-mechanical processing, thin films and devices, nano-materials, soft matter, biomaterials, energy materials, and electron microscopy. The department publishes around 15 journals papers every year and has INR 3.1 Cr of project funding. The department started its bachelors program in July, 2014 with a unique curriculum comprised of fractal courses which facilitates expansion of the core subject acumen as well as personal skills. The department prepares its students for research roles as well as other professional roles by providing a conducive environment for all round development.
Suhash Ranjan Dey
Ph.D - University Paul-Verlaine - Metz, France
Associate Professor
Research Areas: Titanium alloys – CIGS/CZTS solar cells - Electrodeposition

Ranjith Ramadurai
Ph.D - IISc Bangalore
Assistant Professor

Pinaki P. Bhattacharjee
Ph.D - IIT Kanpur
Associate Professor & HoD

Atul Suresh Deshpande
Ph.D - Max-Plnack Institute of Colloids and Interfaces - Potsdam, Germany
Assistant Professor
Research Areas: Synthesis chemistry – energy materials - biomaterials

Saswata Bhattacharya
Ph.D - IISc Bangalore
Assistant Professor

Mudrika Khandelwal
Ph.D - University of Cambridge, UK
Assistant Professor
Research Areas: Nature inspired materials, antifouling materials, flexible conducting paper

Nobuhiro Tsuji
Professor, Kyoto University, Japan
Teaching Subject: FC5452-Dislocation Theory for Mechanical Behaviors of Metals

VISITING FACULTY

Bharat B Panigraphi
Ph.D - IIT Kharagpur
Assistant Professor
Research Areas: Powder metallurgy – dilatometry- sintering processes

Subhradeep Chatterjee
Ph.D - IISc, Bangalore
Assistant Professor
Research Areas: Phase Transformations, Electron Microscopy, Welding and Solidification Processing, Microstructural Modelling
CEP Courses
Saswata Bhattacharya, Certificate course on Micromechanics: fundamental concepts and applications in the study of microstructural evolution at TATA Steel R&D Centre, Jamshedpur, 5-11 February 2016.

Patents Filed
Improved process for Wood derived Carbon - Metal oxide composites prepared by nanocasting of wood for electrode materials in lithium ion batteries, Janardhanan Revathi, Atul Suresh Deshpande Tata Narasinga Rao, Indian patent filed –2016.

Book Chapters

Publications
(In Peer-Reviewed Journals)

Tunable ferroelectric domain orientation in polycrystalline and highly oriented NBT thin films, Kamaraswamy Miriala and Ranjith Ramadurai, Materials letters, 178, 23–26 (2016).
Investigations on Dielectric phase transition behavior of Pb(Fe0.5-xScx)Nb0.5O3 Multiferroic Ceramics, Bandi Mallesham and Ranjith Ramadurai, *MRS Advances*, (2016), http://dx.doi.org/10.1557/adv.2016.145.

Effect of Crystal Structure and Cationic Order on Phonon Modes across Ferroelectric Phase Transformation in Pb(Fe0.5-xScxNb0.5)O3 Bulk Ceramics, B. Mallesham, B. Viswanath and R. Ranjith *AIP Advances*, 6, 015116(2016).


**Publications**
*(in Peer-Reviewed Conferences)*


Correlation between processing map domains and microstructure of 50% hot compressed IMI 834 Ti alloy, K. Basanth Kumar, Rajamallu Karre and Suhash R. Dey, TITANIUM 2015, 13th World Conference Titanium 2015, San Diego, USA, Conference Proceedings, 343, 2016.


Funded Research Projects 2015-16
Mudrika Khandelwal, Polymer and carbon based three dimensional micropatterned fabric with enhanced wettability contrast, DST-UKIERI, April 2015, Rs. 25.0 Lakhs.
Mudrika Khandelwal, Novel low cost antifouling materials for health care and food packaging industry SERB fast track young scientist, Aug 2015, Rs. 33.0 Lakhs.

Talks Given In International / National Conferences
Awards / Recognitions

Best Oral Presentation Award, ICAAMM-2016, International Conference on Advancements in Aeronautical Materials for Manufacturing, Mr. Basanth Kumar Kodli (Ph.D. student of Dr. Suhash Ranjan Dey).

Guest Professor at Prof. Kei Aneyama’s Group, Ritsumeikan University, Japan in June-July 2015 (40 days) under DST-JSPS joint project, Suhash Ranjan Dey.

MRSI – Medal, Materials Research Society of India (MRSI) – Medal for young Materials Researcher for the year 2016, Ranjith Ramadurai.

The best student paper award in 7th International Conference on Creep, Fatigue and Creep-Fatigue Interaction, IGCAR, Kalpakkam, INDIA, Saswata Bhattacharya.

Gandhian Young Innovation Appreciation 2016, Mudrika Khandelwal.

Other Events


Bharat B. Panigrahi, TEQIP Workshop on Thermal analysis of Materials Using DTA, DSC,TG & Dilatometer (TAM-2), Indian Institute of Technology Hyderabad, India, 12-14 August 2015.

Bharat B. Panigrahi, TEQIP Workshop on Teacher Effectiveness Nurturing Your Well Being, Indian Institute of Technology Hyderabad, India, 6-7 December 2015.


Bharat B. Panigrahi, TEQIP Workshop on X-ray Scattering Techniques (SAXS and WAXS), Indian Institute of Technology Hyderabad, India, 28-29 December 2015.
The Department of Mathematics was one of the six departments that was founded along with the Institute and offers programmes at the masters and doctoral level. Since its inception, the department has made a conscious effort to grow in sync with the directions of the Institute and an awareness of the larger needs of the society. In consonance with this philosophy, the department envisages the following:

“To foster eclecticism and excellence in mathematical education and research which is well poised between abstraction and application.”

The Department has young and dedicated faculty working both in pure and applied branches of Mathematics who actively collaborate with their counterparts from the other engineering departments. Faculty members have achieved many distinctions - for instance, they have been invited to be part of research committees of the Government of India, are established resource personnel in programmes promoting both basic and advanced Mathematics, are members of the editorial board of reputed journals.

Despite its nascency, the department can already boast of a very healthy publication record. So far the number of peer-reviewed publications with IITH affiliation stands at a respectable 80, with more than 30 international journal publications. Further, the faculty have garnered many externally funded research projects to the tune of Rs. 75 Lakhs.
D. Sukumar  
Ph.D - IIT Madras  
**Assistant Professor & HoD**  
*Research Areas: Functional Analysis, Operator Algebras, Numerical Linear Algebra*

Tanmoy Paul  
Ph.D - ISI Calcutta  
**Assistant Professor**  
*Research Areas: Functional Analysis, Banach Space Theory, Geometry of Banach Spaces*

C. S. Sastry  
Ph.D - IIT Kanpur  
**Associate Professor**  
*Research Areas: Wavelets, Computed Tomography, Sparsity seeking optimization techniques*

Venku Naidu Dogga  
Ph.D - IIT Madras  
**Assistant Professor**  
*Research Areas: Harmonic analysis, Functional analysis*

Balasubramaniam J.  
Ph.D - Sri Satyasai Institute of Higher Learning  
**Associate Professor**  
*Research Areas: Fuzzy Logic Connectives, Approximate Reasoning*

CH VG Narasimha Kumar  
Ph.D - TIFR Bombay  
**Assistant Professor**  
*Research Areas: Number Theory*

P. A. Lakshmi Narayana  
Ph.D - IIT Kharagpur  
**Assistant Professor**  
*Research Areas: Convection in Porous Media, Stability of Flows*

Pradipto Banerjee  
Ph.D - University of South Carolina  
**Assistant Professor**  
*Research Areas: Number theory*

G. Ramesh  
Ph.D - IIT Madras  
**Assistant Professor**  
*Research Areas: Functional Analysis, Operator Algebras*

**VISITING FACULTY**

Prabkhar Akella  
*Visiting Assistant Professor*  
*Teaching Subjects: Combinatorics and Graph theory, Numerical Analysis for M.Sc Complex analysis, Linear algebra, Calculus for B.Tech*
Publications
(In Peer-Reviewed Journals)


Publications
(In Peer-Reviewed Conferences)


Biggest open ball in invertible elements of Banach Algebra, Banach Algebras and Applications, The Fields Institute, Toronto, Canada 4-12, August 2015.

Seminars Organised

Algebraicity of Fourier coefficients of half-integral weight modular forms, Dr. Narasimha Kumar, Assistant Professor, IITH, 7 September 2015.

Level sets of condition spectrum, Mr. S Veeramani, IITH, 28 September 2015.

Approximate Solutions of Integral Equations, Dr. Rekha P. Kulkarni, IIT Mumbai, 28 September 2015.

Frames in matrix Fock spaces, Dr. R. Radha, IIT Madras, 30 September 2015.

Biggest open ball in invertible elements of a Banach algebra, Ms. Geethika Sebastian, IITH, 26 October 2015.
Absolutely minimum attaining operators, Mr. Jadav Ganesh, IITH, 2 November 2015.

Reliable resource-constrained telecardiology via compressive detection of anomalous ECG signals, Mr. B. Sandeep Chandra, IITH, 9 November 2015.

On the gaps between non-zero Fourier coefficients of cusp forms of higher weight, Dr. Narasimha Kumar, IITH, 6 January 2016.

Some basic properties of infinite Toeplitz operator defined on $l^1(Z)$, Mr. S Veeramani, IITH, 27 January 2016.

Operators commuting with translations, Dr. D. Venku Naidu, IITH, 10 February 2016.

Local to Global Principle, Mr. Surjeet Kaushik, IITH, 6 April 2016.

On conservation laws with discontinuous flux, Dr. Sudarshan kumar, Centro de Investigación en Ingeniería Matemática UDEC, Chile, 6 May 2016.

P. A. L. Narayana, Linear and nonlinear fluid flow stabilities and numerical methods, Emerging Trends in Fluid Mechanics, Christ University, Bangalore, India 29-30 April 2016.


CH. V. G. Narasimha Kumar, the gaps between non-zero Fourier coefficients of cusp forms of higher weight, Invited talk given at Workshop on Automorphic forms, KSOM, Kozhikode, 10-16 February 2016.

Talks Given In International / National Conferences

J. Balasubramaniam, Fuzzy Implications: An Algebraic Perspective, 8th Intl. Summer School on Aggregation Operators, Katowice, Poland, 7 July 2015.

Workshops / Symposia Organised

Math Summer Camp for School Students, 9-14 May 2016.
The Department of Mechanical & Aerospace Engineering (MAE) has faculty members with specializations in the fields of solid mechanics, structural vibration and control, acoustics, robotics, materials, manufacturing, rapid-prototyping, fluid mechanics, heat transfer, combustion, computation fluid dynamics, etc. Currently, the Department has established many state-of-the-art teaching and research labs, and is offering undergraduate (B.Tech.) and post graduate (M.Tech and Ph.D.) programs in Mechanical Engineering.

The UG and M.Tech programs have a dual orientation towards a strong foundation in fundamentals coupled with a strong industry orientation. The latter results in hands-on experience on software tools for Computer-aided Design, Finite-Element Analysis, Computational Fluid Dynamics, Kinematic and Dynamics, Computational Mathematics, etc., in the many project oriented courses in the curriculum. This prepares the students to take up jobs in India’s burgeoning Industrial R&D sectors after they graduate. The M.Tech program has one year in advanced course-work followed by one year of thesis work, in which research problems in either applied industrial or fundamental research areas can be taken up, on the choice of the student.

The Ph.D program has a strong foundation of advanced course-work for one year, which is more rigorous than usual in most IITs, followed by research work in fundamental areas, where the focus is on developing the capacity for independent research and research leadership in the student. Because of the generous funding available through MHRD, very high-end research equipment has been installed at IITH to facilitate Ph.D research.
Raja Banerjee  
Ph.D - University of Missouri Rolla - USA  
*Associate Professor & HoD*  
**Research Areas:** High fidelity CFD, Multiphase flow, spray & atomization, Lattice Boltzmann method

V. Eswaran  
Ph.D - State University of NY at Stony Prof  
*Professor*  
**Research Areas:** Computational fluid dynamics and heat transfer, Finite volume methods, Turbulence modelling

N. V. Reddy  
Ph.D - IIT Kanpur  
*Professor*  
**Research Areas:** Digital Fabrication, Design and Manufacturing

R. Prasanth Kumar  
Ph.D - IIT Kharagpur  
*Associate Professor*  
**Research Areas:** Multibody Dynamics, Robotics

M. Ramji  
Ph.D - IIT Madras  
*Associate Professor*  
**Research Areas:** Composite Repair, Damage Mechanics in Composites, Buckling Analysis of Stiffened CFRP panel, Experimental Mechanics

K Venkatasubbaiah  
Ph.D - IIT Kanpur  
*Associate Professor*  
**Research Areas:** Computational Heat Transfer and Hypersonic Flows

Abhay Sharma  
Ph.D - IIT Roorke  
*Associate Professor*  
**Research Areas:** Experimental and Numerical studies in Joining and Welding, Sustainable Manufacturing

B. Venkatesham  
Ph.D - IISc, Bangalore  
*Assistant Professor*  
**Research Areas:** Acoustics & vibration

S. Surya Kumar  
Ph.D - IIT Bombay  
*Assistant Professor*  
**Research Areas:** Additive manufacturing

Ashok Kumar Pandey  
Ph.D - IISc, Bangalore  
*Assistant Professor*  
**Research Areas:** Linear and Nonlinear Vibration, Vehicle Dynamics, MEMS

Chandrika Prakash Vyasarayani  
Ph.D - University of Waterloo, Canada  
*Assistant Professor*  
**Research Areas:** Time delayed systems, parameter identification, structural dynamics, MEMS

Viswanath Chinthapenta  
Ph.D - Brown University, USA  
*Assistant Professor*  
**Research Areas:** Computational Solid Mechanics, Bio Mechanics, SHM, Composites, Fracture Mechanics

Nishanth Dongari  
Ph.D - University of Strathclyde, UK  
*Assistant Professor*  
**Research Areas:** Microfluidics, Rarefied gas dynamics, Compressible gas flows

Harish Nagaraj Dixit  
Ph.D - Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore  
*Assistant Professor*  
**Research Areas:** Vortex dynamics, hydrodynamic stability, interfacial flows, thin films, coating
Karri Badarinath
Ph.D - National University of Singapore
Assistant Professor
Research Areas: Bubble dynamics, high-speed imaging, experimental fluid mechanics

Pankaj S Kolhe
Ph.D - The University of Alabama, USA
Assistant Professor
Research Areas: Alternative Fuels, Combustion and Flow diagnostics, IC Engines, and Turbomachines

Saravanan Balusamy
Ph.D - University of INSA of Rouen, France
Assistant Professor
Research Areas: Combustion, Laser Diagnostics, IC Engines

Syed Nizamuddin Khaderi
Ph.D - University of Groingen, Netherlands
Assistant Professor
Research Areas: Solid mechanics, impact mechanics, fluid structure interaction

R Gangadharan
Ph.D - IISc, Bangalore
Assistant Professor
Research Areas: Non-destructive testing and Evaluation, Structural Health monitoring, Analysis and design of Composite Structures

Prashant Saxena
Ph.D - University of Glasgow, Scotland, UK
Assistant Professor
Research Areas: Continuum Mechanics, Nonlinear Elasticity, Biomechanics, Magneto-Mechanics

CHAIR PROFESSOR

V. K. Saraswat
DAE Homi Bhabha Chair
Former Secretary, Dept. of Defence R&D (GoI), Scientific Advisor to Raksha Mantri, Director General of DRDO & ADA
CEP Courses
M. Ramji, Short Term Course on Fracture Mechanics, Siemens Ltd., Chennai, India, 19-20 October 2015.
R. Gangadharan, Mechanics of Composite Materials-2 credit course, 8 participants from CYIENT, June 2015.

Patents Filed

Book Chapters
Optimisation of variable stiffness plates in Composite materials and structures in aerospace engineering, E Carrera, Transtech publications, 2016, Torino, Italy.

Publications
(In Peer-Reviewed Journals)
Energetics of Constant Height Level Bounding in Quadruped Robots, P. Murali Krishna and R. Prasanth Kumar, Robotica, 34, 403-422 (2016).
On process-structure-property interconnection in anti-phase synchronised twin-wire GMAW of low...


Vibration assisted welding processes and their influence on quality of welds, M.J. Jose, S. Surya Kumar, Abhay Sharma, Science and Technology of Welding and Joining, 21, 4, 243-258(2016).


Progressive damage study in an adhesively bonded patch repaired open hole CFRP panel under compressive loading, V Chinthapenta, CM Manjunatha, Sourabhdh Khedar, M Ramji, Journal of Aerospace Sciences and Technologies 67 (28), 299-308.


Publications
(In Peer-Reviewed Conferences)

Experimental and numerical modal analysis to investigate the effect of fluid fill level on sloshing frequency and structural natural frequency of a rectangular tank, Mayur Kothari, Atul Jadhav, B. Venkatesham, R. Banerjee, *National Symposium on Acoustic Acoustic for Ocean Environment*, Goa, 7-9 October 2015.


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**Funded Research Projects 2015-16**

Raja Banerjee, *Development of a GPU enabled VOF based two-phase CFD solver to simulate flow dynamics in a steel producing converter*, JFE Steel Corporation, Japan, 13 January 2016, Rs. 45.0 Lakhs.

R. Prasanth Kumar, *Development of Telepresence Robot for Health Care – Phase 1*, Asian Institute of Gastroenterology, 24 May 2015, Rs. 3.6 Lakhs.

M. Ramji, *Static and Fatigue Compression Test Results of MYK Groat M65 Cubes*, MYK SCHOMBURG INDIA PVT LTD, 2015, Rs. 6.00 Lakhs.

Abhay Sharma, *Machining of Pure Tungsten with Improved Productivity and Quality*, DMRL, July 15, Rs. 24.0 Lakhs.


B. Venkatesham, *Development of India Specific car audio tuning parameters*, Hyundai Motor India Engineering Pvt. Ltd, June 2015, Rs. 17.8 Lakhs.

B. Venkatesham, *Development of Noise attenuation methodology of a single stage axial fan*, Bharat Heavy Electricals Ltd, R&D Division, August 2015, Rs. 7.5 Lakhs.

B. Venkatesham, *Development of Transformer Noise attenuation concepts using Numerical models and experimental measurements*, Bharat Heavy Electricals Ltd, R&D Division, January 2016, Rs. 7.5 Lakhs.

Ashok Kumar Pandey, *Coupled dynamics of MEMS and NEMS arrays*, CSIR, 1 January 2016, Rs. 17.46 Lakhs.


R. Gangadharan, *Experimental studies on delamination failure of fiber reinforced composites under static and fatigue loading*, SERB, 2 Feb 2016, Rs. 23.5 Lakhs.


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**Seminars Organised**

State-of-the-art technology of visualization in welding arcs, Prof. Manabu Tanaka, Osaka University, 9 February 2015.

Welding Metallurgy, Prof. Kazuhiro Ito, Osaka University, 9 February 2015.


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**Talks Given In International / National Conferences**


M. Ramji, Damage Mechanism in open hole CFRP Panel being subjected to tensile, compressive and flexural loading: Experimental and Numerical Approach, INCCOM-14, 14th ISAMPE National Conference, Hyderabad, India, 22 January 2016.


Y. S. Kannan, S. Balusamy, B. Karri, Laser diagnostics for characterization of sprays formed by a collapsing non-equilibrium bubble, 9th International Symposium on Cavitation CAV2015, Lausanne, Switzerland, 6-9 December 2015.

A. K. Pandey, Design aspect of MEMS devices, Faculty Development Workshop, Gokaraju Rangaraju Institute of Engineering and Technology, Hyderabad, 20 November 2015.

A. K. Pandey, Linear and nonlinear frequency tuning of MEMS arrays, 18th International Workshop on the Physics of Semiconductor Devices, IISc Bangalore, 7-9 December 2015.

A. K. Pandey, Design and fabrication of MEMS devices, National workshop on Recent Trends and Research Opportunities in Manufacturing Processes, VNR Vignana Jyothi Institute of Engineering and Technology, Hyderabad, 10 March 2015.


Workshops / Symposia Organised


V. Chinthapenta, Non-linear Fem of Steel Structures, Indian Structural steel Professionals and Academicians meet (ISPAT-2016). TEQIP-II, IIT Hyderabad, 6-11 June 2016.


Awards / Recognitions

Outstanding reviewer - Optics and Lasers in Engineering May 2015. (An Elsevier Journal), top 10th percentile of reviewers for the Journal, in terms of the number of manuscript reviews completed in the last two years, M. Ramji.

Ramanujan Fellowship by SERB, Prashant Saxena.

Other Events

B Venkatesham, Faculty coordinator of CIS Internship


The **Department of Physics**, IIT Hyderabad is one of the most vibrant and active departments in the institute and it conducts cutting edge research in many frontier areas of physics such as high energy physics, condensed matter physics, atomic and molecular physics and Laser physics. The department has 14 faculty at present and trying to expand in various areas of physics. The theme of the department is to focus on conducting research on physical phenomena across all energy scales - from the subatomic to the cosmic and become an outstanding center for physics in the next decade.

The department offers Ph.D, M.Sc and B. Tech (Engineering Physics) programs. Since its inception, faculty has established several research labs (Advanced Functional Materials Lab, MEMs lab, Magnetic Materials and Device Physics Lab, Micromagnetism Lab, Advanced Detector lab, Materials Design and Simulations Lab). In addition to the above research labs, department of physics also has sophisticated M. Sc and B. Tech laboratories which enrich student’s technical skills in addition to theory. The department also has plans to establish a computational nano-science lab, a Physics-at-small-scales Lab and a Laser & Photonics lab. It plans to offer an integrated Ph.D. program in Physics and an interdisciplinary M.Tech program in Nano-Science & Technology.
Faculty

Anjan Giri
Ph.D - Utkal University
Professor & HoD
Research Areas: Flavour Physics and CP violation, Neutrino Physics and BSM Physics

Jyoti Ranjan Mohanty
Ph.D - Humboldt University, Germany
Assistant Professor
Research Areas: Nanomagnetism, ultrafast magnetism, micromagnetics

Prem Pal
Ph.D - IIT Delhi
Associate Professor
Research Areas: MEMS, Silicon Micromachining, Thin film for MEMS, Wet anisotropic etching

Narendra Sahu
Ph.D - IIT Bombay
Assistant professor
Research Areas: Dark Matter Phenomenology, Direct and indirect detection of dark matter, Matter ant-matter asymmetry, Leptogenesis.

Saket Asthana
Ph.D - IIT Bombay
Associate Professor
Research Areas: Functional Materials, Photonic Ceramics, Piezoluminescence, Magneto-luminescence, Electric field driven effects, Cation Engineering, Materials Chemistry routes to synthesis new materials

Raavi Sai Santosh Kumar
Ph.D - University of Hyderabad
Assistant Professor
Research Areas: Ultrafast laser spectroscopy, Ultrafast Nonlinear Optics, Organic material based Photovoltaics (BHJ, DSSC, ss-DSSC and Hybrid)

Venkatakrishnan Kanchana
Ph.D - Anna University
Associate Professor

Shubho Ranjan Roy
Ph.D - Brown University, USA
Assistant Professor
Research Areas: String Theory, Classical and Quantum Gravity, Quantum Field Theory

Suryanarayana Jammalamadaka
Ph.D - IIT Madras
Assistant Professor
Research Areas: Magnetic materials, spintronics, mesoscopic physics, thinfilms/device physics, magnetic nanoparticles, Graphene, magnetostrictive sensors, photovoltaics, non volatile memory

Vandana Sharma
Ph.D - PRL, Ahmedabad
Assistant Professor
Research Areas: Femtosecond lasers systems, Attosecond Pulse Trains and Ultrafast atomic and molecular dynamics


Influence of A-site cation disorder on structural and magnetocaloric properties of Nd_{0.7-x}La_{0.2}Sr_{x}MnO_{3} (x=0.0, 0.1, 0.2 & 0.3), Sudharshan Vadnala, Prem Pal, Saket Asthana, *J Mater Sci: Mater Electron*, 27, 6156 (2016).


Structural and microstructural correlation with ferroelectric and dielectric properties of nanostructured Na_{0.5}Bi_{0.5}TiO_{3} ceramics, Mannmohan Sahu, Karthik Thangavelu, Adiraj Srinivas Saket Asthana, *J Mater Sci: Mater Electron*. 26, 9746 (2015).


Investigation of near room temperature magnetocaloric, magnetoresistance and bolometric properties of Nd_{0.5}La_{0.2}Sr_{0.3}MnO_{3}: Ag_{2}O manganites, Sudarshan Vadnala, Prem Pal, Saket Asthana, *J Mater Sci: Mater Electron*. 27, 6156 (2016).


Calculated high-pressure structural properties, lattice dynamics and quasi particle band structures of perovskite fluorides KZnF_{x}, CsCaF_{x}, and BaLiF_{x}.
G. Vaitheeswaran, V. Kanchana, Xinxin Zhang, Yanning Ma, A. Svane, N. E. Christensen, J. Physics: Condens. Matter., 28, 315403 (2016)


Predicted thermoelectric properties of olivine-type Fe,GeCh (Ch = S, Se, Te), Vijay Kumar Gudelli, V. Kanchana, G. Vaitheeswaran, J. Physics: Condens. Matter., 28, 01552 (2016).


Optical properties of orthovanadates, and periodates studied from first principles theory, G. Shwetha, V. Kanchana, G. Vaitheeswaran, Material Chemistry and Physics, 163, 376-386 (2015).


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**Publications**

*(In Peer-Reviewed Conferences)*

Large $\theta_{13}$ and $\delta$ Perturbation with Neutrino Mass Matrix, C. Upender, B. Behera, A. Giri, Springer Proc. Physics, 174, 261-266 (2016) 10.1007/978-3-319-25619-1_40.


Impedance and Conductivity Studies on BiFeO$_3$ and 0.90BiFeO$_3$-0.10Na$_{0.5}$TiO$_3$ Ceramics, T Durga

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**Designing the Future**


Effect of A-site ionic size variation on TCR and electrical transport properties of (Nd$_{0.7-x}$Lax)$_{0.7}$Sr$_{0.3}$MnO$_3$ with x=0,0.1 and 0.2, Sudarshan Vadnala, Saket Asthana, Prem Pal and S. Srinath, *IOP Conf. Series: Materials Science and Engineering* 73 012047 (2015).


Laser-driven proton and deuteron acceleration from a pure solid-density H2/D2 cryogenic jet, J Kim, M Gauthier, B Ramakrishna et al., *57th Annual Meeting of the APS Division of Plasma Physics Bulletin of the American Physical Society* 60, 16–20 November 2015; Savannah, Georgia.


Proton shock acceleration using a high contrast high intensity laser, C Roedel, C Curry, M Gauthier, B Ramakrishna et al., *Bulletin of the American Physical Society* 60, 16–20 November 2015; Savannah, Georgia.


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**Funded Research Projects 2015-16**

Saket Asthana, *Electric field driven phase stabilization and structure property correlation in A-site disordered lead-free piezoceramics*, DST-SERB, 18 September 2015, Rs. 49.0 Lakhs.


Bhuvanesh Ramakrishna, *Enhanced ion heating in buried layer targets*, DST-DAAD, October 2015, Rs. 10.7 lakhs.


Raavi Sai Santosh Kumar, *Development of femtosecond transient absorption spectrometer for exciton dissociation studies at a donor / acceptor interface in hybrid solar cell*, DST, 12 February 2016, Rs. 21.20 Lakhs.

Suryanarayana Jammalamadaka, *Scanning tunneling microscope studies on magnetostrictive FeGa thin films; LTHM; In-situ magnetic and structural studies*, UGC-CSR-DAE, March 2016, Rs. 1.35 Lakhs.

Vandana Sharma, *Designing and fabrication of reaction microscope to study ultrafast dynamics of atoms and molecules*, DST, 30 June 2015, Rs. 27.87 Lakhs.

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**Seminars Organised**

Nature of Superconductivity due to site dilution of attractive centers, Dr. G. Venkateswara Pai, HRI, Allahabad, 12 January 2016.
Super conducting junctions as detectors of Dirac fermions and Majorana modes, Dr. M. Maiti JINR, Dubna, 14 January 2016.


Precision Reactor Antineutrino Studies with PROSPECT Experiment, Mr. Pranava Teja Surukuchi Illinois Institute of Technology, Chicago, USA, 19 February 2016.

Standard model and the Higgs boson(s) at the Large Hadron Collider, Dr. Priyotosh Bandyopadhyay, Università di Lecco, Italy, 1 March 2016.


Nanomaterials for next generation energy storage devices and reversible ion-exchange to control magnetism, Dr. Bijoy Kumar Das, Karlsruhe Institute of Technology, Germany, 17 March 2016.

Nature inspired computational architectures, Dr. Saurabh Bose, University of Canterbury, New Zealand, 18 April 2016.

Talks Given In International / National Conferences

$\mu \rightarrow e\gamma$ in a supersymmetric model, Recent Trends in Astro Particle and Particle Physics, IISc Bangalore, 11-12 October 2015.


Structural, vibrational and ferroic properties of AgTaO$_3$, from first principle calculations, XXVII IUPAP Conference on Computational Physics, CCP2015, Indian Institute of Technology Guwahati, Assam, India, 2 - 5 December 2015.


Hard to soft ferroelectric transition with enhanced piezoelectric properties assisted by global and local structural variations in a lead free 0.92NBT-0.08CZT ceramics, World Congress and Expo on Nanotechnology and Materials Science, Dubai, UAE, 13-15 April 2015.

Electronic structure and thermoelectric properties of natural minerals, Advanced Materials for Energy and Environmental Applications (AMEEA- 2015), Department of Physics, Bharathiar University,
Coimbatore, 18-20 March 2015.


Laser driven ion acceleration, First Newton- Bhabha-UK-India bilateral meeting on High Field Science, Trivandrum, March, 1 March 2016.


Exploring nanoscale and ultrafast dynamics of magnetic multilayer system for application, DAE-SSPS2015, Noida, India, 21-25 December 2015.

Understanding microscopic ultrafast magnetization dynamics in magnetic multilayer, ICMAGMA 2015, Vellore, India, 2-4 December 2015.

Ultrafast magnetization dynamics in magnetic multilayer, UFS 2015, Kolkata, India, 19-21 November 2015.

Imaging local magneto-structural properties with scanning probe, EMSI 2015, BARC, Mumbai, India, 8-10 July 2015.

Magnetic domain dynamics in magnetic multilayer, IJWMN 2015, Bhubaneswar, India, 9-12 January 2015.


Dark matter: From cosmos to collider, invited talk given in a national seminar Advances in astroparticle physics, held at School of physics, Sambalpur University, Odissa, during 19-20 February 2016.

Vector-like fermion dark matter: From cosmos to collider, invited seminar given in the department of physics, IIT Guwahati, on 20 January 2016.

Vector-like leptonic dark matter and collider signatures, invited talk given in a conference Recent trends in Astro-particle and particle physics held at CHEF, IISc Bangalore, 11-12 October 2015.


Ferromagnetism and exchange bias in graphene nanoribbons, Osaka University, Japan on 24 February 2015.

Magnetostriuctive materials and their applications, Osaka University, Japan on 24 February 2015.


Remote control of magnetostriiction based nanocontacts at room temperature, ICMAGMA – 2015, Vellore, Tamil Nadu 2-4 December.

Presentation on Detection of ultrafast heat pulses from the molecular magnet Mn12-Ac – at high field sweep rates, ICMAGMA – 2015, Vellore, Tamil Nadu 2-4 December.

Workshops / Symposia Organised

Five days TEQIP Workshop on MEMS and NEMS (Design & Fabrication), Indian Institute of Technology Hyderabad, 14-18 December 2015.

Awards / Recognitions

Fast-Track young scientist award (June 2015), DST, Vandana Sharma
Visiting fellowship (2015-2016), JNCASR, Saket Asthana.

Other Events

Dr. Shubho R. Roy, Co-organized the first lecture in the Public Lecture Series with Dr. Harish N. Dixit. Title: The New Wave in Physics, Astronomy and Technology, C. S. Unnikrishnan (Tata Institute of Fundamental Research, Mumbai), 31 March 2016.
OVERVIEW
The idea behind the project was to make use of flex sensors along with accelerometer and gyro sensor to build a device which can be used for interpreting hand symbols.

DESCRIPTION
The device makes use of flex (resistance) sensors along with accelerometer and gyro sensor to convert hand symbols into text. The flex sensor gives a resistance value according to the folding of the finger. It gives a high value for a curled finger and low value for a straight finger. The flex sensors are connected to the Arduino which in turn processes the signals along with signals from accelerometer and gyro sensor to produce an output. Different inputs are mapped to various output, which can be text, speech or anything you want.

APPLICATION AND FUTURE PROSPECTS
We primarily wanted to use this device for the mute and the dumb people. This can be used for easing the communication with other people who do not understand sign languages.

A basic model for symbol-to-speech interface has also been developed. Apart from this use, we can also use it for controlling home appliances. We are working on integrating a Bluetooth module to make it wireless. The product is expandable if optimized for code to print symbols.

Hand Symbol Interpreter
**Escort Robot**

**DESCRIPTION**

This project is about making of an escort robot which guides a guest/visitor who is new to a location from one place to the other. It implements an efficient search algorithm to find the shortest feasible path from the current location to any target location. Our algorithm can extract data from any general layout created in AutoCAD software and creates a database of all traversable co-ordinates of a map. Our search algorithm generates an optimal path very efficiently from those feasible co-ordinates. It also detects moving obstacles while in motion and waits until the obstacle stops blocking its way. It also has information about the location of every stationary obstacle. To make this process user-friendly, we are using an Android app which takes the current and target locations as inputs from the user and sends the data to robot.

**APPLICATION AND FUTURE PROSPECTS**

Major application could be mounting a detector for explosives and hazardous materials and those detection in the building is possible without human involvement in the search.

In future it is possible to make dynamic changes in the path followed by the robot by scanning the environment by image processing to make it even more accurate and increase its applicability.

An Android app and import the current code into a java script, so that it could be implemented through the Android app only, which would reduce the hardware cost and processing demands.

It can use its ability to process image of its environment to dynamically make maps of a location along with escorting using concepts of A.I.

**Quadcopter**

**DESCRIPTION**

This project involves making of a quadcopter that is mounted with a camera and is capable of live streaming of the events to the ground or a mobile phone. This project involves building a quadcopter, assembling and mounting the required hardware on it for the live streaming.

**APPLICATIONS AND FUTURE PROSPECTS**

Quadcopter has been successfully used in several applications like security surveillance, traffic control, unmanned deliveries etc. It is expected that these devices will play a major role in day-to-day life in the coming future.

**Current activities:** A quadcopter that is capable of moving in disaster sites and count the number of people entrapped in an unfortunate location (like flood surrounded regions).

**BAJA Student India 2016**

**DESCRIPTION**

In this project an engine is provided and the students are asked to build a single seated all-terrain vehicle.

**PROSPECTS AND OUTCOME OF THE PROJECT**

IIT students have cleared the prelims of BAJA Students event based on the design and evaluation. Later the IIT team built the vehicle and tested it. Among the 400 teams around the country, IIT has secured 33rd position.
ELAN 2k16, one of the biggest techno-cultural fests of India concluded on 31st January after a three day fun filled extravaganza. Since its inception, ELAN has grown bigger and better every year and this seventh edition of ELAN is a testament to the effort put in by the students. This year, the theme of ELAN was “The Devil’s Carnival”. As a build up to the fest, a Quadcopter workshop was conducted where students learnt how to build a quadcopter hands on. Online events like Cric It for cricket lovers, a selfie contest in association with Infocus, the photography club of IIT Hyderabad and the online literary festival were conducted throughout the year. Having a sense of social awareness and giving back to society, Elan organized a cloth donation drive, blood donation camp and a health camp in association with NSS, IIT Hyderabad. In the run up to the fest, ELAN also organized a flash mob at the Forum Sujana Mall which created a great deal of buzz among the students, participants and viewers.

Day one began with the face painting and mehendi competitions and setting up the art exhibits for some exquisite and beautiful work by students from various colleges. The Nrithyanjali and Loose your feet participants brought the audience to life with their astounding moves and incredible talent. Other events such as Conversation Cofee, JAM and AAA were also conducted on day one.

The second day saw mind boggling participation for all the technical, cultural, informal and literary events. The institute corridors and lecture halls were filled with continuous activity by the participants of Robo wars, Robo Soccer, Robo epic, poster presentation and various other quizzing prelims. Manthan (Hindi band competition), ElaneJung (English band competition), Vibrazione and Octave participants entertained the crowd with their own compositions. While informal events were being held on the informal stage to entertain the students, students were also busy participating through the day in the Quiz conclave, quizzing their hearts out in the BizSciTech, General and MELA quizzes, and testing out their luck in the Wheel of Fortune.

With the standards being set by the first two days, the third day of ELAN only made the feel better by setting the stage for one of the highlight events of ELAN, Mr. & Ms. ELAN, in the evening. Beautiful girls walked the ramp to set the temperatures rising, auditioning for the Femina Miss India beauty pageant, which was then followed by the war of DJs. This was judged by DJ Iqbal. For the first time, ELAN also organized a cultural workshop on contemporary dance, during the time of the fest. Break free(Group dance competition) saw some tremendous performances by professional dance schools and college dance troupes. While on informal stage, the duo dance competition also saw some romantic performances. The technical and literary events set the institute corridors and lecture halls abuzz with a tremendous amount of participation. It was then the time for the organizing team of ELAN to roll down some tears down their cheeks after a yearlong hard work.
Cultural Council - The Fun Factory of IITH. We had a great year (2015-'16) this time. Two cultural nights, 2 DJ+Ice cream nights, one fresher specific cultural night (Grand Masti), were the major events conducted by the Cultural Council. Each club had their own workshops.

Quizzes by Literary Society (LitSoc), dance workshop by Dance Club (Shuffle), acting sessions and workshops by Drama Club (Rang De Manch), guitar sessions and vocal sessions by Music Club (Vibes) and many more. Best of all was Photography Club (Infocus), photo walk, different types of photography and most importantly placement diaries and they put in a continuous effort.

Clubs individually perform in other college fests with their own effort and support from the institute. Movie Club (Behind the Lens) and VFX club have made many videos and vines in the past year.

Arts Club (Gesture) have done their best in showing the importance of art to the students. We acknowledge hostel office, securities and all others who helped for everything during this academic year. To summarize, the cultural council did their best and achieved many things.

But we feel, it impacts us, the organizers more than anybody else. Everyone who was an organizer/volunteer for ηvision learns important life skills like thinking on the spot, time management, etc. It helped countless people from IITH find their passion, and we hope you will be among them.

We are growing exponentially adding more events and reaching more people every year. With a broader scope and bigger ideas. With a myriad of events spread across a plethora of domains, ηvision 2016 was a platform which shall integrate technology with challenging life problems. A festival full of promise, ηvision 2016 shall be a journey more exciting and enthralling than any other to bring out the real geek in any techie.
SCI TECH COUNCIL
It was another exceptional year for Science and Technology activities at IIT Hyderabad. We have crossed many milestones this year in introducing new tech events, collaborations and a club as well.
NSS Activities 2015-16

VIDYADAAN

Vidyadaan is one of the most successful events of NSS IITH, helping struggling village students with their studies. NSS IITH has been doing Vidyadaan in many nearby villages. Every weekend enthusiastic volunteers take part in this activity of imparting education to the village students. These volunteers take classes for 6 to 10th standards.

NSS IITH has conducted Mathematics exams in the schools. This exam was aimed to understand their weak points in the subject and thus, to support them with necessary training. That is not the end, they are given a complete analysis. NSS IITH is going to conduct many such exams wherein students will learn from their students.

Teaching is the act of sharing knowledge which we have been blessed with, with the hope that, some day in some way, it again will be passed on.
GANDHI JAYANTI CELEBRATIONS - SWACHH BHARAT ABHIYAN

On the eve of Gandhi Jayanti, NSS IITH conducted an event in the hostel premises. This was attended by Dr. Prem Pal (NSS Coordinator) and Dr. Mahendra Madhavan (Coordinator Swachh Bharat Abhiyan @ IITH), many graduating students, NSS volunteers, hostel and housekeeping staff. The event was started by paying obeisance to Mahatma Gandhiji. We had excellent speeches given by Dr. Prem Pal, and some of the enthusiastic NSS volunteers on Gandhiji and also Shastriji who shares his birthday with Gandhiji.

After paying homage to those great freedom fighters we had Dr. Madhavan preside over the function. He talked about the Swachh Bharat Abhiyan and its importance. Now the event came to its important part. All the attendees picked up their broomstick and started cleaning the hostel premises and all around the Ordnance factory. The event even got more important as Dr. Prem Pal and Dr. Madhavan themselves sprung into cleaning the streets along with other attendees. This event was a great success and this success is attributed to all those NSS volunteers who attended the event.

ORPHANAGE VISIT

In the Month of November NSS IITH decided to light up the faces of under-privileged children who have been taken under the wing of Mahima Ministries, a social services organization. The NSS volunteers carried snacks, sweets and various eatables along with some firecrackers for the kids. The volunteers received a very warm welcome from the care-takers of the children.

The volunteers did a wonderful job in keeping the kids entertained for the duration of their short stay. They told them stories, played games and, to top it all, left them with some firecrackers to have a blast this Diwali. After an hour or so, the volunteers bid them goodbye leaving them with really sweet and precious memories to be looked back upon with a smile. Credit must be given to Mahima Ministries for holding the hands of these tiny tots when luck and family had deserted them. The work of such organizations must be brought to the forefront for everyone to see and perhaps even lend a helping hand if need be, as NSS IITH attempted to do.
T he NSS IITH has taken an active participation in the organization and coordination of the Public Health Checkup Camp on 21st November 2015 which was conducted in Uttarapalli, a village honourably adopted by IIT-Hyderabad under the noble scheme of Unnat Bharat Abhiyan. The overwhelmingly successful health camp was initially envisaged solely for a regular dental and ocular check-up of the students of primary school. However, upon receiving a tremendous response from the students, it was extended to all the villagers.

The volunteers set out for Uttarapalli early in the morning and were diligent in getting all the infrastructure ready. Their prolonged enthusiasm throughout the day supported the entire staff of doctors to check the health conditions with precision and speed with great fervor.

NSS IIT Hyderabad expresses its sincere gratitude to the Elan Social Cause team of IIT Hyderabad, Lions’ Club (Greater Patancheru) and M.N.R Medical College, Sangareddy for bearing equal responsibility of the health check-up camp as a whole and transforming the endeavour into success.

SELF DEFENCE CLASSES

Self-defence classes is an unexplored initiative taken up by the NSS IITH team with collaboration with the Women’s Cell of IIT Hyderabad in the spring semester of 2016. The intention is for every individual to possess basic self-defence skills, which might come in handy in unwanted and adverse situations.

The classes were conducted in the evening hours of Monday, Wednesday and Friday of every week throughout the months of March and April. The classes commenced with various warm-up exercises followed by stretching exercises. Then, the instructors went on to teach a plethora of kicks and punches thoroughly in a manner as systematic as possible, only as far as what the students could fathom.

There has been a steady attendance of 30 students throughout the classes, which makes the inaugural version of self-defence classes successful. NSS believes that such basics of combat need to be imparted to one and all so that everyone can be able to defend oneself from unexpected assailants.
CHILDREN’S DAY

On the eve of Children’s day, the NSS IITH took the cheer of the day to the Uttarpalli government school and ODF ZPHS. In both schools, the volunteers were greeted with warmth by the teachers and students. The program commenced with the teachers infusing the importance of the day into the heads of the students with their words of wisdom.

Following this, a bunch of events and contests were organised by the volunteers for the children. These included elocution, drawing, quiz and rangoli-making contests. There was active participation from the students in all of these events. Towards the end of their sojourn, was the prize distribution ceremony.

BLOOD DONATION CAMP

Blood donation camps were organised at the temporary campus (ODF Estate Yeddumailaram) and the permanent campus (Kandi, Sangareddy) of IIT Hyderabad to celebrate the occasions of National Republic day and National Independence Day respect in association with the Sangareddy District Hospital. The event witnessed an unprecedented number of donors, over 112; comprising mostly of the students, faculty and working staff of IIT Hyderabad. ‘Bugga’ an initiative by NSS IITH for Fighting Leukemia, also saw a good response with around 80 students registering their White Blood Cell type into the database.

PHOTOGRAPHY WORKSHOP

NSS IITH and Infocus IITH collaboratively conducted a hands-on workshop for ODF school students on different types of photography. NSS IITH firmly believes that apart from imparting education to the under-previleged students, creative activities such as Photography etc. should also be encouraged.
SPORTS

With a strength of around 500 students, the National Sports Organization started its full-fledged program in August for the academic year 2015-16. The list of events goes as follows:

**FRIENDSHIP RACE**
It was conducted on 2nd August 2015 as a part of freshmen interaction on eve of International Friendship day. It had a huge participation of around 600 from students, staff and faculty with their family members. Prizes for the event were distributed on the eve of Independence Day.

**Interaction Matches**
As another major part of freshmen interaction program, football, cricket, volleyball, basketball, badminton etc. were conducted from the date of registration till 10th August 2015.

**NSO**
Our first NSO interaction with freshmen was conducted on 3rd August. The main aim of NSO, IIT Hyderabad is to inculcate sportive spirit in the students. With four coaches in total for various events and sports equipment for about 8 team events, aquatics and athletics, it has been and is functioning smooth. New registrations for NSO were invited from the freshmen. After enrolment, NSO hours have been conducted on every Wednesday and Friday for all the NSO registered B.Techs.

**INTERNATIONAL DAY OF YOGA**
On 21st June 2015, IIT Hyderabad celebrated the first International Day of Yoga. Starting with director’s speech we gave a presentation on Yoga, what does it mean, its history, development, and benefits of doing it with two videos of demonstration about yoga asana followed by demonstration of asanas to the audience and made them do some basic asanas and pranayama.
SPORTS

INTER IIT SPORTS MEET 2015
Camp for Inter IIT Sports Meet 2015 started on 29th November with a total participants of 118 in various events like Badminton(M&W), Basketball(M&W), Cricket, Football, Hockey, Lawn Tennis(M&W), Table Tennis(M&W), Volleyball(M&W), Weight lifting and athletic events. It went smooth with full-fledged facilities and proper food till 9th December. As there were heavy floods in Tamil Nadu State, IIT Madras had to cancel the Inter IIT Sports Meet on the decision of the Inter IIT Sports Board Meeting which happened through video conference.

RUN FOR UNITY
It was organized on 31th October 2015 on the eve of Rashtriya Ekta Diwas. It had huge participation from students, faculty and staff.

FRIENDLY TOURNAMENTS
Students of IIT Hyderabad have played friendly practice matches with institutes like BITS Hyderabad, GITAMS Hyderabad, Medak district teams and ODF employees’ team.

Students also participated in friendly tournaments with CBIT, IIT Hyderabad, etc.

INTRAMURAL SPORTS
Informal leagues for badminton, basketball, cricket, hockey, volleyball, table tennis, football and kabaddi were conducted. The 8th annual sports meet was Interdepartmental. As there was no Inter IIT Sports Meet, we organised Inter Departmental Sports Meet in which UG, PG and staff participated better than ever and made students compete in the same level as in Inter IIT sports meet. It covered all the team events along with athletic events as that of the Inter IIT sports meet. Women's basketball was introduced. Prizes were distributed on Gymkhana day.

GYMKHANA DAY
On 12th April, prizes were distributed for winner teams of various events and rolling shield for General Champion Ship for the department which bagged highest points. Mementos for Sports person of the year and for the best athlete were also given.
GLIMPSES OF OUR NEW CAMPUS