TATA CENTRE
TECHNOLOGY & DESIGN
IIT BOMBAY

Thematic areas of focus at Tata Centre

- Agriculture & Food
- Energy
- Healthcare
- Housing
- Education
- Water

Ongoing Projects

Title	Project Investigator	Fellow
De-shelling of marking nut	Prof. Upendra Bhandarkar	Sangeeth Sankar
Ice-maker using nocturnal radiative cooling	Prof. Dipankar	Umang Shah
Low power transceivers for wireless communication	Prof. Jayanta Mukherjee	Aswathy Nandakumar
Low cost and rugged solar PV microinverter	Prof. Vivek Agarwal	Tirtha Sarathi Lodh
Gasifier based cook-stoves	Prof. Sanjay Mahajani	Sandeep Sharma
Jaundice diagnostics in neonatal care	Prof. Soumyo Mukherji	Aayush Gupta
Functional nanohybrids for cancer treatment	Prof. D. Bahadur	Sayan Samanta
Point-of-care diagnostic for Osteoporosis	Prof. Santosh Noronha	Akshay Subramaniam
Product for voice prosthesis	Prof. Prasanna Gandhi	Karan Vijaywargiya
Non-invasive delivery of non-steroidal drugs	Prof. Rohit Srivastava	Shwetha Hymavathi
Low cost bone graft for bone reconstruction	Prof. Jayesh Bellare	Deepak Gupta
Low-cost point-of-care blood cell analysis	Prof. Debjani Paul	Shefali Mittal
Technology options in addressing malnutrition	Prof. N. Shah	Ashish Kumar Paswan
Exploring potential of mass manufacturing in housing	Prof. B. Chakravarthy	Gaurav Vaidya
Development of cool roof coatings	Prof. A. S. Khanna	Vikram Singh
Housing in cubic feet	Prof. Uday Athavankar	Vishal Bhushan Jha
Pedal operated potable water filtration system	Prof. A. B. Rao	Ramprasad Venkatesha
Mobile technology based tools for English Learning	Prof. Alka Hingorani	Karan Vohra
Collaboration between craft and designers communities	Prof. Nina Sabnani	Tapan Kumar

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TATA CENTRE
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Turning Point

Issue
01
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The Oriental Magpie Robin (*Copsychus saularis*) An ubiquitous resident of the IIT-B campus

Tata Centre for Technology and Design (TCTD)

What is Tata Centre?

Tata Centre for Technology & Design (TCTD) at IIT Bombay was established in March 2014 in collaboration with Sir Dorabji Tata Trust and has a sister centre at MIT, USA.

TCTD offers several fellowships to graduate students from various academic units at IITB and lets them work on continuing projects under the guidance of IITB faculty members. It enables interdisciplinary collaboration and fosters holistic thinking.

Designing a product/system to provide value to the underserved sections of the consumer/business base makes better business sense than pruning an existing product to suit slimmer budgets and requirements.

Prof. Sanjay Mahajani
Professor In-Charge

Welcome to the first edition of the Tata Centre for Technology and Design (TCTD) newsletter. It aims to represent various voices from the Centre and hopes to reach out to include a wider audience seeking information about our project activities.

In our newsletters we intend to feature key project events, recent research articles, and updates on the new activities undertaken at TCTD. We also wish to feature articles relevant to the six thematic areas of our focus viz. agriculture and food, energy, health care, water, housing and education.

We hope the Centre's newsletter will cater to all members associated with TCTD and encourage fruitful dialogue. Complementing this newsletter is our website www.tatacentre.iitb.ac.in where you can find additional information.

We welcome your feedback on this issue, and look forward to your contributions to forthcoming issues of the newsletter.

Study Visit of Dharavi by IITB and MIT Tata Center Fellows

TCTD IITB-MIT Conference

The Tata Centre for Technology and Design at IITB organized the IITB-MIT Tata Centre Conference from 18th–22nd of August 2014. To begin the proceedings, the new TCTD-MIT fellows inducted in 2014 were given their inaugural orientation (even though classes had not yet begun at MIT), with a primary goal of building communities across institutions (IITB and MIT).

To kick-start the proceedings, TCTD IITB organised an afternoon study visit to Dharavi for the present fellows and associates.

Day 2 started with debriefings on strata, process mapping and review of the Dharavi visit. Then the attendees visited various health care centers, such as Holy Family (Bandra), Sion Hospital, Tata Cancer Memorial Hospital, Cure International and KEM Hospital.

Day 3 began with talks by entrepreneurs from Ziqitza Health Care, Nandi Midday Meal, Swasth and the Grameen Shramik Pratisthan, a saree recycling program. This was followed by a tour of SINE (Society for Innovation and Entrepreneurship), IITB.

From Day 4, the 2013 TCTD Fellows from MIT joined the proceedings, and participated in discussions relating to a general overview of Tata Centre and the major thrust sectors of MIT TCTD.

As a token of goodwill, all involved with the IITB-MIT-TCTD were invited to a gala dinner hosted by the Director, IIT Bombay at Hotel Renaissance.

On the last day of the conference, the fellows and faculty from IITB as well as MIT presented their work. This was followed by a Q & A session with teams from Tata Trust working on various socio-economic challenges.

The 5 day long conference and field visits provided momentum to the entire effort at the Tata Centre. Considerable discussion took place about the needs of the society and possible solutions to such problems. It was also a cultural amalgamation, where the fellows from IITB and MIT bonded with each other over discussions and food. More such joint programs are in the pipeline.

Tata Center at MIT: tatacenter.mit.edu

Demonstrations at Treelabs

Next Issue

- Training: Electronics, CAD, 3D Printing, Fabrication, Prototyping, Making Business Plans
- One week field study by Tata Fellows at NIRMAN, Sevagram at Gadchiroli

TCTD Proseminar

Proseminar, also named as Technology Design & End-to-End Innovation – I & II, are courses offered by the Centre to expose students to conceptual frame works and case studies that collectively provide a holistic view of integrating technology identification, development and deployment via commercial or public initiatives to address challenges faced at the bottom of the economic pyramid.

The courses will impart an under standing of key challenges faced by engineers and managers in the field of product design. It is designed to equip students with a broad toolkit of perspectives and methodologies for problem solving. The course also aims to bring together a community of like minded professionals.

The topics under Proseminar – I varied across a wide range of topics from the theory of commons, challenges of qualitative and quantitative research design thinking and methodology. A major emphasis was given on the need for innovation for the many communities situated at the Bottom of the Pyramid. The Fellows were exposed to hands on activities, interspersed with numerous case studies.

Guest Speakers for Proseminar - I

- **Jaithirth (Jerry) Rao, Chairman, Value Budget Housing Corporation (VBHC), delivered a talk on the need for financing of low cost housing in India. He made a persuasive case regarding why it should not be outsourced. He also provided a valuable understanding of how government policy is unable to address the housing problem.**
- **Dr. Nilay Yajnik, professor and chairman of the Information Systems Area, NMIMS, spoke to the fellows about the different forms of innovation – frugal, disruptive, user based, which were highlighted with several case studies from GE, OnStar, Vortex Eng.**
- **Dr. Ritu Verma, board member ICAAP spoke about her journey from a technical innovator to an entrepreneur. She laid emphasis on bridging the gap between the different challenges faced by technical innovators and end-users.**

Tata Centre is setting up a fabrication lab, to enable budding innovators to translate their ideas into prototypes.

Fablab will also train the fellows, on various nuances of product development

Proposed list of lab equipments:

1.Epilog Legend Laser Cutter

2. ShopBot 4'x 8' Routing System

3. Roland CNC Milling Machine

4. Roland Vinyl Cutter

5. 3D Printer: MakerBot & Stratasys

6. Unimat Manual Desktop Lathe, CNC Mill

7. Numac Hitech CNC PCB Router

8. Tetronix Oscilloscope & measurement instruments