





वार्षिक प्रतिवेदना **ANNUAL REPORT** 2013-2014

विनिर्माण संस्थान, कांचीपुरम INDIAN INSTITUTE OF INFORMATION TECHNOLOGY **DESIGN AND MANUFACTURING, KANCHEEPURAM** 



















# ANNUAL REPORT 2013-14



INDIAN INSTITUTE OF INFORMATION TECHNOLOGY DESIGN AND MANUFACTURING, KANCHEEPURAM

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# FROM THE DIRECTOR'S DESK



'Bringing change by Design' is reflected in all aspects of IIITD&M - teaching, experimental learning, research, product development, student activities, infrastructure development, and campus administration. To become a premier institute of excellence in design and manufacturing, the institute presently offers novel and first of their kind under-graduate programmes leading to B.Tech in Computer Engineering, Electronics Engineering (D&M), and Mechanical Engineering (D&M). With a humble beginning of just three B.Tech programmes with an intake of 20 each, we gradually increased our intake; and I am glad to highlight that from the next academic year onwards, we will be offering Dual degree programmes in all three streams with an increased intake of 40 students in each stream.

The Institute is progressing at a rapid pace and has witnessed excellent growth in all spheres, thanks to aggressive and enthusiastic faculty, staff, and students. The institute has established itself as one of the centres of excellence in Design and Manufacturing since its inception in 2007. Over the past year, IIITD&M has evolved as a Design Centric Institute in Information Technology and Information Technology enabled Design and Manufacturing.

A design centric curriculum, coupled with an experimental learning approach has attracted many product development companies to our campus for campus hiring and internships. Many under graduate students are pursuing Graduate and Research programmes in institues of international repute like Stanford University, Georgia Tech, Columbia University, University of California, IITM, etc. Our vision is reinforced by the fact that our students have developed products such as 'Smart Book Holder for Differently Abled', 'Reading Tool for Visually Challenged'. On the IT front, a 'faculty recruitment system', and a 'PhD application scrutiny system' were developed by enthusiastic undergraduate students.

On the academic front, along with its successful B.Tech programmes, IIITD&M has introduced radically novel Post Graduate programmes, leading to a Masters of Design (M.Des) degree. There are three programmes on offer; two in the field of electronics and one in the field of mechanical engineering. The emphasis of PG programmes is on Design and/or Manufacturing to facilitate deep study in design thinking or in product development. Some of our PG students have been absorbed by product design companies and the rest are pursuing research.

IIITD&M maintains the highest academic quality, in both teaching and research. Our novel teaching pedagogy-learning by doing, facilitates good understanding of rudimentary concepts. This has helped many of our students to get internships in leading industries and research institutions, such as Max-Planck Institute for Informatics, Germany under DAAD, NSK Japan, and Hitachi-NUT, Japan.

On the research front, our vibrant faculty group, with PhD scholars along have contributed 42 papers in peer-reviewed journals and conferences. Also, 6 sponsored projects and various academic projects are being pursued by the faculty. Moreover, a lot of emphasis is on research in all courses taught at IIITD&M. Being a premier institute, our vibrant faculty enthusiastically organizes workshops, conferences and research internships. IConDM'13 – The First International Conference on Design and Manufacturing held at IIITD&M

attracted more than 500 research articles globally, of which 173 were accepted.

MoUs between IIITD&M and Nagaoka University, Japan , University of Catania, Italy, University of Genova, Italy, have been signed to faciliate student exchange programmes and research collaboration.

With regard to extra-curricular activities, the students of IIITD&M make it proud. Our students won many medals, and the IIITD&M finished in the third place overall. The 2014 edition of the Techno-Cultural fest of the institute, Samgatha, attracted many enthusiastic participants from across the country. Samgatha is a place for great minds to meet and exhibit their talents. Our Social service group is very active throughout the academic year, with activities such as free eye-checkup to local citizens, free computer education to school children, blood donation camp, Polio drops drive, and tree plantation drives.

As far infrastructure development is concerned, the institute has made giant leaps, with a sizeable increase in the project works completed / undertaken. The institute administration started functioning from the new administrative block this semester. The construction of Lecturer Hall Complex, Laboratory complex and Multi-storey Hostel are in full swing and these are expected to become operational from the next semester.

IIITD&M is creating a new paradigm in professional education and I am confident IIITD&M will emerge as a top-class institute in the years to come.

#### Prof. R. Gnanamoorthy







#### VISION

#### MISSION

IIITD&M is envisioned as an academic institution of excellence that would facilitate and promote the competitive advantage of Indian products and manufacturing in global markets.

The Mission of IIITD&M is to be a Global Centre of Excellence in Design and Manufacturing Education and Research in the Country.

#### CHARTER

- To provide education and training, at both undergraduate and postgraduate levels, to persons of outstanding abilities who would provide leadership to Indian industry in globally competitive economic environment.
- To carry out advanced research and development activities in design and manufacturing technologies, both on its own and on sponsorship basis for the industry.
- To provide distance learning and continuing education programmes for faculty / scholars from other institutions and industry personnel.
- To organize conferences, seminars, workshops and such other activities for the dissemination of knowledge to industry.



**Prof M S Ananth Chairman** Former Director, IIT Madras

**Prof Bhaskar Ramamurthi** Director Indian Institute of Technology Madras

Lt Gen (Retd) Rao K R PVSM, AVSM, VSM Hyderabad

**Prof David Koilpillai** Dean (Planning) Indian Institute of Technology Madras

**Prof Narayanan S** Emeritus Professor, Former Dean (Research) Indian Institute of Technology Madras

**Prof Isaac K P** Member Secretary AICTE

**Shri Raghavan B S**, IAS (Retd.) Former Policy Advisor to UN & Former Chief Secretary, Govt of Tripura

Shri Krishna G V Giri Managing Director & Vice Chairman, Accenture

Shri Santhanam S President – Flat Glass, South Asia, Egypt & MD Saint Gobain Glass India

Shri Ramachandran T K IAS Secretary to Government, Dept of Information Technology Government of Tamil Nadu

**Smt Rina Sonowal Kouli** Director (ICR), Dept. of Higher Education MHRD, Government of India

**Prof R Gnanamoorthy** Director & Registrar i/c, IIITD&M Kancheepuram







Prof R Gnanamoorthy Director, IIITD&M

**Prof Chandrasekaran K** Former Professor, Anna University, Chennai

**Prof Chandramouli P** Dept of Mech Engg, IIT Madras

**Dr Damodharan P** Assistant Professor, Electronics Engg, IIITD&M

**Dr Shahul Hamid Khan** Assistant Professor, Mechanical Engg, IIITD&M

**Prof Ganesh Sundara Raman S** Dept of Metallurgical & Materials Engg, IIT Madras

**Prof Krishna Vasudevan** Dept of Electrical Engg, IIT Madras

**Prof Harishankar Ramachandran** Dept of Electrical Engg, IIT Madras

**Prof Jagadeesh Kumar V** Dept of Electrical Engg, IIT Madras

**Prof Krishnamoorthy Sivalingam** Dept of Computer Science, IIT Madras

**Prof Raghu Prakash V** Dept of Mech Engg, IIT Madras

Dr M Sathya Prasad Ashok Leyland, Chennai

Shri Sandeep Ghosh Head, New Product Development, Ms TCS ES **Prof Narayanan S** Emeritus Professor, Dept of Mech Engg, IIT Madras

**Prof Santhakumar S** Former Dean Academics, IIT Madras

Prof Nilesh Vasa Dept of Engineering Design, IIT Madras

**Prof Ramanujam R** Institute of Mathematical Sciences, Chennai

**Dr Noor Mahamad** Assistant Professor, warden IIITD&M

Dr K Selvajyothi Assistant Professor, warden IIITD&M

Prof Prabhu KMM Emeritus Professor, Electronics Engg, IIITD&M

**Dr Masilamani V** Assistant Professor, Computer Engg, IIITD&M

**Dr Ravikishore B** HCL Info Systems Pvt Limited, Chennai

Dr Mathiazhagan C CEO Market I Japan & MK Tech India

**Prof Vijayaraghavan L** Dept of Mechanical Engg, IIT Madras

**Prof Hema A Murthy** Dept of Computer Science, IIT Madras

### INSTITUTE ADMINISTRATION



Prof. R. Gnanamoorthy Director



Shri. Ravi Kumar G Asst. Registrar



Shri. P.M. Sriram Bhaskar Jr. Tech. Supdt.



Shri. P. Alaguraj Physical Training Instructor



Shri. S. Karthikeyan Jr. Assistant



Shri. A Vigneshwaran Jr. Technician



Shri. A. Chidambaram Deputy Registrar (A)



Shri. S. Venkateswaran Asst. Registrar



Shri. K. Saravanakumar Jr. Tech. Supdt.



Shri. R. Parthasarathy Jr. Accountant



Shri. K. Dinesh Kumar Jr. Assistant



Shri. M. Aswinraj Jr. Technician



Shri. A. Vijaya Bharathi Jr. Attendant



Shri. A.Manickavasagam Consultant Engineer



Shri. Mahendra Kunku Asst. Registrar



Shri. S. Saravanan Jr. Suptd.



Smt. S. Rajalakshmi Jr. Assistant



Shri. G. Manigandan Jr. Technician



Shri. S. Prabhu Jr. Technician



Shri. P.N. Srinivasan Manager



Shri. Mathivanan K Internal Audit Officer



Shri. S. Pandiyan Jr. Engineer (Civil)



Shri. Y Tejovadan Jr. Suptd.



Smt. G. Subashini Jr. Assistant



Smt. K. Manimegalai Jr. Technician



Shri. R. Balaji Jr. Attendant



# ACADEMICS

### Programmes on offer

Undergraduate Programs B Tech	Post Graduate M Des	Doctoral PhD
Computer Engineering	Electronic Systems Communication Systems Mechanical Systems	Interdisciplinary areas
Electronics Engineering (Design and Manufacturing)		
Mechanical Engineering (Design and Manufacturing)		

#### Mode of Admission

B.Tech	JEE (Main) and + 2 Score through CSAB for Indian Nationals and through DASA for Indian Origin Foreign Nationals.
M.Des	GATE, Undergraduate Performance and Interview
Ph.D	Institute Test and Interview





The Board of Governors of Institute approved the introduction of Innovative Design Centric 5 Year Dual Degree programs from Academic Year 2014 onwards

B.Tech and M.Tech in Computer Engineering

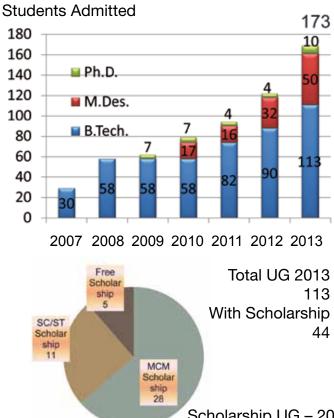
- B.Tech (Electronics Engineering D&M) and
- M.Tech (VLSI and Electronic System Design)
- B.Tech (Electronics Engineering D&M) and
- M.Tech (Signal Processing and Communication System Design)
- B.Tech (Mechanical Engineering D&M) and M.Tech (Product Design)
- B.Tech (Mechanical Engineering D&M) and
- M.Tech (Advanced Manufacturing)

- Flexible Dual Degree Programme
- Branch Change after year one
- Dual degree discipline change after year two
- Five month Industry Internship
- Honours Degree for outstanding students
- Design Project
- **Mode of Admission** JEE (Main) and Plus-2 Normalized Score through CSAB for Indian Nationals and through DASA for Indian Origin Foreign Nationals.





### STUDENT STATISTICS

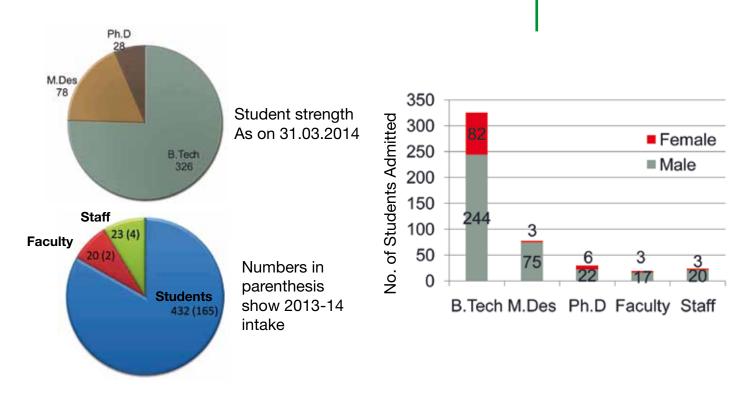


#### **Category wise Distribution**

CATEGORY	B. Tech	M. Des	Ph. D	Total
GN	163	48	17	228
GN-PH	3	-	-	3
OBC	88	21	8	117
OBC-PH	2	-	-	2
SC	42	9	3	54
SC-PH	2	-	-	2
ST	23	-	-	23
ST-PH	1	-	-	1
DASA	2	-	-	2
Total	326	78	28	432

Scholarship UG - 2013 Batch

# STUDENT & STAFF STATISTICS



#### ANNUAL REPORT

# INSTITUTE FEE DETAILS

			Semester Fee Amount		
S.No	Particulars		B.Tech	M Des	Ph.D.
		A. One time	Fees		ł
1	Admission fee		150	150	150
2	Grade card/Thesis fee		150	150	950
3	Provisional certificate		100	100	100
4	Student welfare fund		200	200	200
5	Modernization fee		400	600	600
6	Alumni life membership fee		500	500	500
7	Publication fee (NS)		250	250	250
	l	Total A	1750	1950	2750
	E	B. Semester	r Fees	1	I
1	Tuition fee		25000	5000	2500
2	Examination fee		350	350	500
3	Registration-Enrollment		200	300	500
4	Gymkhana		500	500	500
5	Medical fee		500	500	500
6	Student amenities		2000	2000	2500
		Total B	28550	8650	7000
	C. D.	eposits (Re	fundable):		1
1	Hostel deposit (NS)		1000	1000	1000
2	Institute & Library deposit		2000	2000	2000
		Total C	3000	3000	3000
	D. Hostel Fees	& Mess Ch	arges per sen	nester	1
1	Hostel admission fee		100	100	100
2	Hostel seat rent		500	550	550
3	Fan, elec. & water		300	300	300
4	Hostel maint. charges		6200	6150	6150
5	Advance dining charges		10000	10000	10000
6	Establishment B charges		500	500	500
		Total D	17600	17600	17600
	E.Medical Ins	urance Pre	mium (per an	num)	1
1	Medical Insur. premium pa		709	709	709
	·	Total E	709	709	709
	Hostellers (A+B+C+D+E)		51609	31909	31059
	Day scholars [A+B+C2+E]		33009	13309	12459



# BASIC SCIENCES



Tapas Sil (Ph.D Viswa Bharathi)Assistant ProfessorResearch Interests: TheoreticalNuclear Physics, QuantumMechanics



**Shalu M A** (Ph.D IIT Madras) Assistant Professor **Research Interests:** Graph Theory, Coloring Problems, Algorithms



Naveen Kumar Vats (Ph.D IIT Delhi) AssistantProfessor Research Interests: Fiber Optics, Solar Thermal Energy application



Vijayakumar S (Ph.D IIT Madras) Assistant Professor Research Interests:Computational Complexity, Algorithms, Combinatorial Optimization



Programs offered : Doctoral Programs

# COMPUTER ENGINEERING



Masilamani V (Ph.D IIT Madras) Assistant Professor Research Interests: Image Processing, Computer Vision, Data Structures and Algorithms



Sadagopan N (Ph.D IIT Madras) Assistant Professor Research Interests: Graph Theory, Combinatorics, Data Structures and Algorithms, Computer Networks, Database Systems.

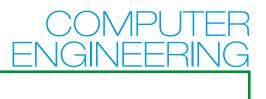


Noor Mahammad SK (Ph.D IIT Madras) Assistant Professor Research Interests: Reconfigurable computing, Software for VLSI Design, Evolvable Hardware, Open Flow Networks, Software Designed Radio

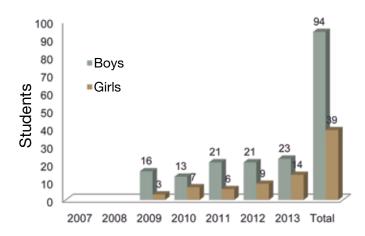


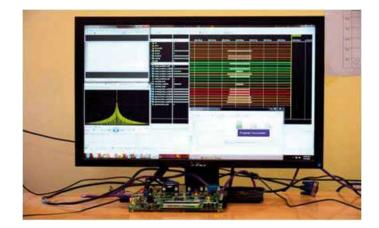
**Sivaselvan B** (Ph.D NIT Trichy) Assistant Professor **Research Interests:** Knowledge and Data Engineering, Human Computer Interaction

Programs offered : B Tech Computer Engineering, Doctoral Programs

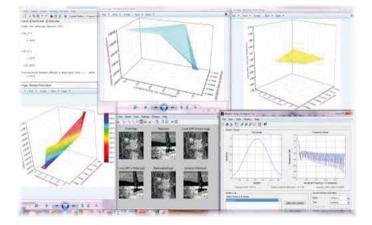


#### **B** Tech Computer Engineering









Some Facilities				
Computers	* Fujitsu/IBM Systems X Servers			
	* High end Xeon Quad Core Processor based workstations			
	* 2 T FLOPS Personal Super Computer			
Software/OS	* Cadence EDA Tools, MATLAB			
	* Xilinx Prototyping Tools			
	* RHEL			
Hardware	* FPGA Prototype Boards			
	* Microprocessor Kits			
	* Interface Cards			



### ELECTRONICS ENGINEERING



**Prabhu K M M** (Ph.D IIT Madras) Professor – Emeritus **Research Interests:** Digital Signal Processing



**Priyanka Kokil** (Ph.D NIT Allahabad) Assistant Professor **Research Interests:** Nonlinear, Delayed Multidimensional Systems



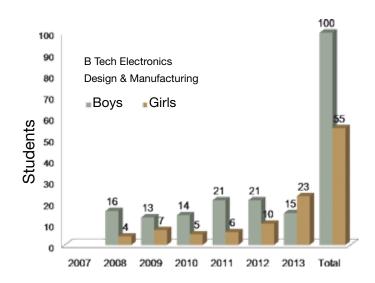
**Binsu J Kailath** (Ph.D IIT Madras) Assistant Professor **Research Interests:** Micro Electronics and MEMS Modelling Technology



**Damodharan P** (Ph.D IIT Madras) Assistant Professor **Research Interests:** Power Electronics and Drives



Karthikeyan S S (Ph.D IIT Guwahati) Assistant Professor Research Interests: Microwave Passive Devices, Microstrip Antennas, MetaMaterials,



#### M Des

		2010	2011	2012	2013	Total
CDS	Boys	-	-	6	15	21
	Girls	-	-	1	0	1
EDS	Boys	7	7	12	17	43
	Girls	5	1	0	1	7



**Dr K Selvajyothi** (Ph.D IIT Madras) Assistant Prof essor **Research Interests:** Power Electronics and Drives, FPGA, DSP control algorithms



**Selvaraj M D** (Ph.D IIT Delhi) Assistant Professor **Research Interests:** Wireless Communications, Digital Communication over Fading Channels.



#### **Some Facilities**

- Altera
- DSK6713
- MSO & DSO Lecroy
- Tektronix
- AFG Tektronix
- Fibre Optica
- Wi Com T
- LAN Trainer
- Mechatronics
- µ Controller
- µ Processor
- TI DSP Board
- MSP430
- NI Elvis
- Sportop (
- Spartan 3E

Programs offered :B Tech (Electronics Engg D&M) M Des (Electronic Systems Design) M Des (Communication Systems Design) Doctoral Programs

- Vector Network Analyzer PCB Prototyping
- Cadence
- Xilinx
- LabVIEWAltera
- MATLAB
- PSPICE
- CCStudio3.3
- IAR System
- MASM
- iVerilog
- IntelliSuite
- TCAD Synopsys
- Ansoft HFSS
- AWR Design

### ENGINEERING DESIGN

creativity Lab

Sout Design

protospine

Detailed D

Analysis

ENGINEERING

DESIGN

Domain of creativity

#### **OBJECTIVES**

Impart creative skills and analytical skills to develop new products.

Provide state of the art training to the student to develop new product prototypes through concept design, detailed design, analysis and simulation.

Demonstrate practical application of simulation software In engineering design.



#### **COURSES OFFERED**

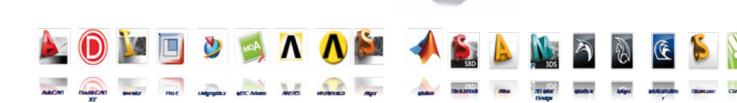
Advanced Engineering Simulations I & II Product Conceptualization & Modeling Product Design and Prototyping Product Design & Development Concepts in Engineering Design Design for Quality & Reliability Engineering Simulations I & II Industrial Design Sketching Machine Drawing Practice Life Cycle Management Engineering Graphics Design History Aesthetics and Ergonomics Product Realization Practice



3D printer CNC lathe CNC router 3D scanner Graphic tablet Form cutting machine Plastic welding machine Micro wood turning lathe High-performance workstations

#### STAFF

Gurunathan C (M Tech IITM) Technical Officer Vigneshwaran, A Manikandan G





### MECHANICAL ENGINEERING



**Prof Gnanamoorthy R** (Dr Eng Japan) **Research Interests:** Mechanical Design and Manufacturing, Surface Engineering



Jayavel S (Ph.D IIT Madras) Assistant Professor Research Interests: Fluid and Thermal Sciences, Computational Fluid Dynamics



**Pandithevan P** (Ph.D IIT Guwahati) Assistant Professor **Research Interests:** CAD/ CAM, Biomimetic Design, Tissue Engineering

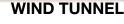


**Raja B** (Ph.D CEG, Anna University) Assistant Professor **Research Interests:** Experimental Thermal and Fluid Science, Nanofluids

#### Z450 PRINTER





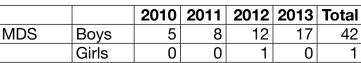


UTM



СММ

M Des





Shaul Hamid Khan (Ph.D NIT Trichy) Assistant Professor Research Interests: Multi Objective Optimization, Supply Chain Management



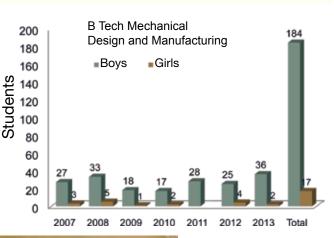
**Sree Kumar M** (Ph.D IIT Madras) Assistant Professor **Research Interests:** Robotics, Mechanisms, Smart Materials, Fuzzy Control



**Gurunathan C** (M Tech IIT Madras) Technical Officer **Research Interests:** Mechanical Design, Engineering Analysis & Simulations, Materials & Design

#### **Programs offered**

- B Tech (Mechanical Engg D&M)
- M Des (Mechanical Systems Design)
- Doctoral Programs



# INSTITUTE LIBRARY

The Institute library supports state of the art **RFID software KOHA.** The software aids in efficient management of day to day transactions such as book issue, return, and user account management. Any registered user can access the library database from **anywhere within the campus using WiFi/LAN.** The institute is one of the core members of INDEST consortium.

Resources	Number
Total No of Books as on 27th March 2014	3589
Total No of books has been purchased in last one year (01st April 2013 to 31st March 2014)	710
Journals/Magazines (printed version)	29
News Papers	05
CD-ROM/DVDs	362
Thesis and Dissertation	97
E-Journals - (Elsevier Science Direct 175 + IEEE Xplore 415)	590
Gratis	83





# FUNDED PROJECTS

Design, Development and Characterization of all-fiber Interferometer for Wavelength Interleaving and Temperature Sensing Applications Principal Investigator: Naveen Kumar Sponsor: DST Duration: 3 years Value: 16.92 Lakhs

Design, Development and Performance Evaluation of Enhanced Air-cooling in Electronic Systems Principal Investigator: S.Jayavel Sponsor: DST Duration: 2 years Value: 15.05 Lakhs

Rural and Remote Ubiquitous Broadband Wireless Access Principal Investigator: M.D.Selvaraj Sponsor: UKIERI Duration: 2 years Value: 20,000 UK Pounds

**DST Project:** Wind tunnel experimental setup







#### **BOOKS PUBLISHED**

Prof K.M.M. Prabhu (Emeritus Professor of the Institute, formerly Professor of Electrical Engineering at IIT Madras) has published a book titled "Window Functions and their applications in Signal Processing", through CRC press

#### **RESEARCH PUBLICATIONS**

B. Madhevan and M. Sreekumar, Tracking Algorithm Using Leader Follower Approach for Multi Robots, Journal of Procedia Engineering-Elsevier, Vol. 64, 1426 – 1435, 2013.

S.N. Keerthi Sagar and M. Sreekumar, Miniaturized Flow Pump using SMA Actuator, Journal of Procedia Engineering-Elsevier, Vol. 64, 896 – 906, 2013.

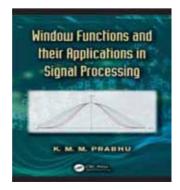
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Nithin Srinivasan and M.D. Selvaraj "Erasure based error analysis with M-ary PSK signaling for cooperative diversity systems", Proc of IEEE Globecom, USA, Dec 2013.

Kanjar De and Masilamani V., "A Spatial Domain Object Seperability Based on No-reference Image Quality Measure using mean and variance", Int Journal of Image and Graphics, Vol. 13(2), 2013

Swaminathan R, Rajarshi Roy, and M.D. Selvaraj "Performance analysis of triple correlated selection combining for cooperative diversity systems", Proc of IEEE ICC, Hungary, June 2013.

Swaminathan R, M.D. Selvaraj, and Rajarshi Roy "Error analysis of NC-BFSK for cooperative diversity with correlated links", Proc of 4th Nordic



Workshop on System and Network Optimization for Wireless, Finland, Apr 2013

Kanjar De and V. Masialmani, "Image Sharpness Measure for Blurred Images in Frequency Domain," International Conference on Design and Manufacturing (IConDM 2013), Procedia Engineering, Vol. 64, 149-158, 2013.

Kanjar De and Masilamani V., "A New No-Reference Image Quality Measure for Blurred Images in Spatial Domain," Journal of Image and Graphics, Vol. 1(1), 39-42, 2013.

D.K. Sheena Christy, V. Masilamani, and D.G. Thomas, "Iso-Array Splicing grammar System", Proc of 7th Int Conf on Bio-inspired Computing: Theories and Applications (BIC-TA) Advances in Intelligent Systems and Computing, Springer, pp.157-167, 2013.

Siddharth K.B, K.S. Praveen, B. Raja, and P. Damodharan, "Measurement of thermal conductivity of fluid using single and dual wire transient techniques", Measurement, Vol. 46(8), 2746-2752, 2013.

Abdul Majeed K K and Binsu J Kailath, "A Novel Phase Frequency Detector for a High Frequency PLL Design", Procedia Engineering , Vol. 64, 377 – 384, 2013.

Abdul Majeed K.K. and Binsu J Kailath, "Low power, High Frequency, Free Dead Zone PFD for a PLL Design, Proc of IEEE Int Conf on Faible Tension Faible Consommtaion (Low Voltage Low Power), Paris, June 2013. Abdul Majeed K K and Binsu J Kailath, "A Novel Phase Frequency Detector for a High Frequency PLLDesign" Int Conf on Design and Manufacturing, IConDM 2013, Chennai, July 2013.

K. V. Phani Kumar and S. S. Karthikeyan, "A Novel Design of Rat Race Coupler Using Defected Microstrip Structure and Folding Technique, IEEE Applied Electromagnetic Conf, Bhubaneshwar, Nov. 2013.

Shahul Hamid Khan. "Modeling and Simulation of Multi Echelon Dynamic Sustainable Supply Chain", 20th Int Business Research Conf, World Business Institute, UAE, April 2013.

Shahul Hamid Khan, Santhosh and Vimal. "A Multi-Objective Optimization using Genetic Algorithm for Green Supply Chain Management". 2nd Int Conf on Advances in Industrial Engg Applications (ICAIEA 2014), Chennai, Jan, 2014.

Sai Kumar K, Vimal K M, Santhosh S, and Shahul Hamid Khan B. "Simulated Annealing for a Multi-Objective Green Supply Chain Network of a Manufacturing Industry", Proc of the Int Con on Science and Innovative Engineering, Chennai, 2014.

R.Krithika, Rogers Mathew, N.S.Narayanaswamy, and N.Sadagopan: A Dirac-type characterization of k-chordal graphs. Discrete Mathematics, Vol. 313(24): 2865-2867, 2013

D.K. Sheena Christy, V. Masilamani, D. Gnanaraj Thomas, Atulya Nagar and T. Robinson, Shuffle on Array Languages Generated by array Grammars, International Journal of Appl. Math (in Press).

Pandithevan. P, "Error minimization in NURBS based shape modification for layered manufacturing of tissue engineering scaffold", Proc of the Int Conf on Additive Manufacturing Technologies (AM-2013), Bangalore, Oct 2013.

Pandithevan. P, "Optimal allocation of weights for NURBS surface fitting", Proc of the Int Conf

on Computer Aided Engineering (CAE-2013), pp. 854-859, Chennai, Dec 2013.

Naveen Kumar, K. Ramachandran, and Venkataraman Sahoo, "Miniaturized Microfiber Mach-Zehnder Interferometer Current Sensor ", Proc. of International Conference on Optics and Laser (ICOL 2014), March 2014

Naveen Kumar, and K. Ramachandran, "Interrogation of a Mach-Zehnder interferometer inside the fiber loop mirror for gain equalization of an EDFA", Proc. of International Conference on Optics and Laser (ICOL 2014), March 2014 Shalu M A, and Devi Yamini S, Counting the maximal independent sets in power set graphs, Journal of Combinatorial Mathematics and Combinatorial Computing (in Press)

R. Senthil Kumar and S. Jayavel, Optimizing the orientation and geometries of electronic components for effective heat transfer, Proc of the Int Conf on Recent Advances in Mechanical Engineering and Interdisciplinary Developments, ICRAMID, Mar 2014.

Y. Usha and S. Jayavel, Influence of flow rate and component spacing on heat transfer in an electronic system, ibid

S. Thirumavalavan and S. Jayavel, Design of continuous reactor system for the production of biodiesel, Proc of the Int Conference on Recent Advances in Mechanical Engineering and Interdisciplinary Developments, ICRAMID, Mar 2014.

N. Sathyanarayanan, S. Jayavel and Theoklis Nikolaidis, Stability and performance analysis of a two spool gas turbine aero-engine, ibid

S. Sathish Kumar, R. Senthil Kumar and S. Jayavel, Numerical investigation of forced convective cooling of electronic components, Proc of the 22nd Natl and 11th Int ISHMT-ASME Heat and Mass Transfer Conf, HMTC'13, Dec 2013.



G. Kalaignanam, K. Swapna, B. Naveen and S. Jayavel, Experimental investigation of direct contact heat exchanger for domestic air-conditioners, Proc of the 40th Natl Conf on Fluid Mechanics and Fluid Power, FMFP, Dec 2013.

N. Sathyanarayanan, S. Jayavel and Theoklis Nikolaidis, Off design performance simulation of gas turbine aero-engine,

S. Sathish Kumar, R. Senthil Kumar and S. Jayavel, Computation of Flow Past Various Cylinder Geometries, Proc of Indian Conf on Applied Mechanics (INCAM), Jul 2013.

M. R. Anders, S. Shlomo and Tapas Sil, "Giant resonances in 40Ca and 48Ca", Accepted for publication in Phys. Rev C.

P. K. Bera and Tapas Sil, "Exact solutions of Feinberg-Horodecki equation for time-dependent anharmonic oscillator", Accepted for publication in Pramana.

K. Arun, and K. Selvajyothi "Observer Based Current Controlled Single Phase Grid Connected Inverter" Procedia Engineering, Elsevier, Vol.64, 367–376, 2013.

K. Arun, and K. Selvajyothi, Control of Grid Connected Single Phase Inverter Using Composite Observer, IEEE Int Conf on Control Communication and Computing (ICCC), Thiruvananthapuram, Dec 2013.

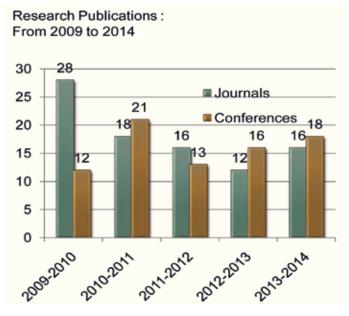
Naveen Kumar, K. Ramachandran, Venkataraman Sahoo, and V. Raj koti, "Fabrication of Long Tapered Fiber and Micro Mach-Zehnder Interferometer for Sensing Applications", Proc. of Int Conf on Optics and Laser (ICOL 2014), Mar 2014 Kanjar De and Masilamani V., "A Spatial Domain Object Seperability Based on No-reference Image Quality Measure using mean and varience", Int Conf on Video and Media (ICVM 2013), Thailand, May 2013.

Naveen Kumar, "Quantifiable Dependence of Exergy and Energy on Temperature Difference", Proc. of International Conference on Advances in Energy Research (ICAER 2013), pp. 120-125, December 2013

Naveen Kumar, and K. Ramachandran, A novel interferometric technique for the gain equalization of an EDFA", WRAP 2013, December 2013

Krishna C, Mohit S, Sowmya Jain, and B Sivaselvan, Novel CAPTCHA Design based on Cognitive Factors, CNC 2014, ACEEE, Elsevier, Chennai, February 2014.

#### Research Publications: From 2009 to 2014.



Number of faculty 20

# HONORS & RECOGNITIONS

Japanese Society of Mechanical Engineers (JSME) recognized Prof R.Gnanamoorthy as one of the Authorities in the field of Mechanical Engineering and offered him a position in International Advisory Board for many JSME Journals (2013-14)

Prof R. Gnanamoorthy received Distinguished Aluminous award for contributions to education and research by CIT, Coimbatore on 8th March 2014

Prof R. Gnanamoorthy delivered Convocation address and awarded degrees to the students of Surya Group of Institutions on their 1st Graduation Day in May 2013.

Prof R. Gnanamoorthy participated as Chief Guest on the Graduation Day of the constituent colleges of Anna University Tindivanam Campus on 21 Jan 2014.

Our faculty serve as reviewers for many national and international journals.











M. Sree Kumar, Key Note Speech on "Smart Materials for Smart Applications", IEEE Intern Conf on Energy Efficient Technologies for Sustainability (ICCEETS'13), Nagercoil, 10-12 April 2013.

M. Sree Kumar, Key Note Speech on "Innovative Applications of Smart Materials in Mechanical and Mechatronic Systems, National Conf on Innovations in Mechanical, Mechatronic and Building Sciences (NCIMMBS 2013), 25th April 2013.

M. Sree Kumar, Lecture on "Parallel Mechanisms, Compliant Mechanisms and Smart Materials", Vel Tech University, Chennai, Aug. 2013.

M. Sree Kumar, Invited Lecture on "Introduction to Feedback & Control, Intelligent Devices and Biomimetics and Applications of Various Smart Materials in Biomimetics, Prosthetics, and Orthotics" at the Two Day Continuing Education Programme on Smart Materials in Prosthetics & Orthotics Applications, March 2014.

V. Masilamani, A Talk on Syntax Directed Translation, RMK Engineering College Chennai, 15th Feb. 2014.

V. Masilamani, A Talk on Branch and Bound, RMK Engineering College Chennai, 1st March, 2014.

V. Masilamani, Key-note address on "Applications of Automata Theory and Formal Languages in Compiler

Design", National Conference on Mathematics and Computer Application, Women's Christian College, Chennai on 15th March, 2014

V. Masilamani, A Talk on Solvability and Tractability, Velammal Engineering College, Chennai, 17th March, 2014

S.S. Karthikeyan, Keynote address on "Metamaterials and its applications", National conference, Annai College of Engineering and Technology, Kumbakonam, 2nd April 2013.

S.S. Karthikeyan Invited talk on "Size miniaturization of Microwave Devices for Wireless Applications" at VIT University, Chennai, 25th Jan. 2014

S.S. Karthikeyan Talk on "Special Antennas" at Agni College of Engineering and Technology, Chennai, 17th Mar. 2014

Shalu M A, Modular decomposition and c2-join, National conference on mathematical techniques and its applications, SRM University, Chennai, 6th January 2014.

Naveen Kumar, "Solar Energy Harvesting Through Optical Fibers," Invited Talk at Workshop on Recent Advances in Photonics (WRAP), IIT Delhi, December 17-18, 2013.







### Workshop on Research Challenges in RF & Wireless Communication June 2013

A two day workshop on research challenges in RF and Wireless Communications was coordinated by Dr M D Selvaraj and Dr S Karthikeyan from Electronics Engineering stream. The workshop attracted participants from all over the country, totaling around 75. The workshop was inaugurated by Prof Amitava Das Gupta, Professor, Department of Electrical Engineering, IIT Madras. Guest and invited lectures were delivered by experts from IIT Madras, NIT Trichy, Tata Elexi and the host institute. The workshop was sponsored by CSIR and jointly organized by IIITD&M Kancheepuram and M/s. Rohde & Schwartz India. Participants were exposed to the recent issues and research trends in RF and Wireless Communication and the workshop talks were received well by participants from both academia and industry.



**One Week STTP on Robotics June 2013** 

A one week Short Term Training Programme (STTP) on Practical Approaches in Robotics and Smart Material Technologies was organized by IIITD&M Kancheepuram during 24-28 June 2013. Twenty three participants, both faculties and research scholars, from various Institutes throughout India participated. Experts from IIT, IIITD&M, IGCAR, SERC-CSIR and also industrial experts from NI, Bangalore and GSM, Bangalore delivered lectures in specialized areas such as Underwater Robotics, Smart Materials-Modeling and Applications, Structural Applications of Smart Materials, Sensor Integration and Data Acquisition using LabVIEW, Robots in Nuclear Applications and Robot Control. Dr M Sreekumar was the programme coordinator.





### Challenges in Rapid Product Development and Manufacturing July 2013

Seventy Participants from all across India participated in learning new technologies focusing on the areas of rapid product development.

Geometric modeling being the key area in Design and Manufacturing, Dr. M.Ramanathan of IIT Madras was invited to deliver talks on geometric modeling in rapid product development.

The workshop was sponsored by CSIR and was entirely coordinated by Dr.P.Pandithevan.

#### **Research Internships**

A one month long internship programme was organized by the Computer Engineering Department of IIITDM&K during June 2013. The programme aimed at attracting opulent UG and PG students from various engineering institutes across the country.

The Research interns were exposed to basic concepts in proposed areas of the internship in addition to the specialized topics.

The programme was a grand success considering the enormous response evoked in the very first year of its operation. The enthusiastic participation and involvement of the research interns pave way for upcoming Internship Programmes by IIITD&MK



# CONFERENCES ORGANIZED



### First International Conference – IConDM 2013

The First International Conference on Design and Manufacturing, focusing on the areas of Product Development was organized by the Institute during July 18-20, 2013 and was inaugurated by Dr.Matteo Zoppi, University of Genova, Italy.

It included keynoted lectures by eminent academicians namely Prof.P Nithiarasu, Swansea University (UK), Prof Geral Seet of Nanyang Technological University (Singapore) and Prof. Ravinder Dahiya of Italy.

Sessions everyday began with a keynote speech followed by paper presentations by the authors.







Anand Vijayaraghavan and Ramesh Krishnan did Summer Internship at Max-planck Institute for Informatics, Germany during summer 2013. They were part of Theoretical Computer Science group at MPI. Summer Internship was supported by DAAD Germany

Saurav Verma received the Best Poster Award - "A New Method to Improve Service Life of Polymer Based Gears", presented at APA International Conference on Polymers: Vision & Innovation organised by IIT Delhi ~ Feb'14. His co-authors are J.Mertens and S.Senthilvelan from IIT Guwahati.

Siddharth Agarwal, Saikumar Battanoju, Azhuku Sakthi Vel won Second Prize in ACM-Chennai Programming contest

#### **Students Pursuing Higher Studies in reputed Institutes**

Ilambharathi Kanniah MS Columbia University Niveditha Raveendran MS Georgia Tech Surabhi Jain MS Ohio State University Anas Farooqui MS Purdue University **Ramya Ramesh** MS University Southern California Swapna MS University of Ilinois Chiranjeevi MS Arizona State University Anjan MS Georgia Tech Venkataraman Sahu, PhD NCTU Taiwan. Amit Kumar PhD NTU Taiwan. Praveen Saho, IITM Ph.D Arun, IIM Trichy Sakthi Saligram, ISB Hyderbad, Young India Fellowship Praveen, IITH Ph.D Ganesh, IITK Ph.D Umesh, IITM Ph.D



### PLACEMENT & INTERNSHIP

IIITD&M witnessed an excellent placement drive last year. About 80% of the students got an offer through campus.











Industry Institute Interaction Meet was organized at the IIITD&M campus for arriving at various ways of interaction with the Industry on 17 May 2013. Representatives from various industry participated in the event and adviced on possible interaction.

Representatives from various industries participated in the event and extended valuable suggestions on possible ways of enhancing interaction of the Institute with the real-world engineering action.

Third Year B.Tech students of Mechanical Engineering stream visited BMW India Pvt. Ltd. at Mahindra World City, Chennai on 13th November 2013. The visit proved beneficial to our students, who were exposed to the unique aspects and assembly details at BMW.

Industrial visit to M/s. Danfoss Industries Pvt. Ltd., Sholinganallur (manufacturer of air conditioning related equipments) in the month of Feb. 2014. This visit is again by third year B.Tech students of Mechanical Engineering stream

Industrial Visit by II and III year B.Tech of Electronics Engineering to M/s. Dell India Pvt. Ltd., Sriperumbudur, on 28 Feb 2014

Industrial Visit by all final year B.Tech students across the streams to M/s. Madras Fertilizers Limited, Manali, Chennai, on 3 March 2014.





# STUDENT ACTIVITIES

#### SAMGATHA

SAMGATHA, the annual cultural and technical fest of the Institute saw its fourth edition conducted in a grand manner during March 2014.

Inter-Institute fest evoked superb responses from the students this year, considering the large number of registrations for the techno-cultural fiesta.

This edition surpassed the success quotient of the preceding editions, paving way for escalated expectations for the forthcoming Samgatha'15

There were 13 events which include Enginerd, IgNobel, Live Wire, Coding, Robotics, etc. and Collage, Debate, Photography, Shades of Grey, Short Film making, etc. constituted the events in the cultural category. This edition witnessed a grand success.

#### **DESIGNER'S CLUB**

In line with the vision of the institute to excel in innovative product design and development, students of the computer, electronics and mechanical engineering discipline involve in an interdisciplinary product development activity as part of the B.Tech and M.Des curricula. Over the years, this course has resulted in several interesting and novel ideas and products. Some of the products include 'Artificial Eye - The Eye for the Blind', 'Braile Reader for Visually Challenged', etc. One such product is shown on the right. The figure shows 'Smart Book Holder for Differentlyabled'. The other interesting products include 'Piezo Disc Mounted Shoe Charger', Portable washing machine, Umbrella with torch etc.

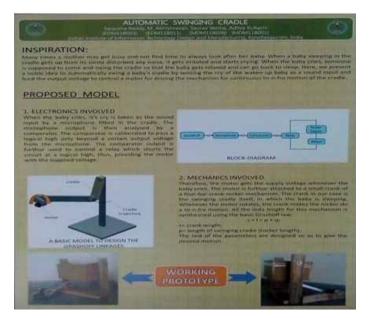








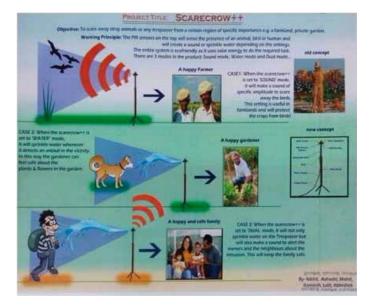
#### Automatic Swinging Cradle



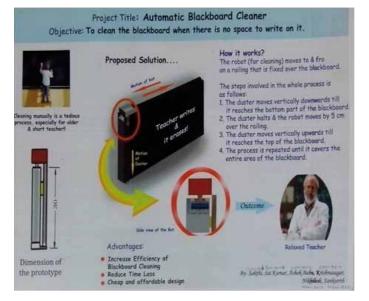
#### **Umbrella with Torch**



#### Tool to scare birds in Farms



#### Automatic Blackboard Cleaner



# INVITED LECTURES

Lecture by Shri Sundarasekaran, GM (Plant), Madras Fertilizers Ltd, Manali, Chennai on "Wireless Communication in Process Industries", 22 Sep 2013.

Lecture on Product Design and Development delivered by Shri Balasubramanian Sridhar, Ford-Australia, on 6 Jan 2014.

Guest lecture by a team from T.I.M.E (Triumphant Institute of Management Education Pvt. Ltd.,), Chennai on training students preparing for competitive exams such as CAT, GMAT, GATE, MAT, and Campus Recruitment Training on 18 Jan 2014.

Dr, V Sampath, Dept. of Metallurgical and Materials Engineering, IIT Madras, delivered an expert lecture on "Smart Materials-Principles, Mechanisms and Applications" on 24 Jan 2014.

Dr B Ravi Kishore and his team, M/s HCL Technologies Ltd., Chennai, "Wireless System Design and Engineering Challenges", 14 March 2014.

Mr Chirag Patel, M/s. Math Works India Pvt. Ltd., Bangalore, "Gaining Practical Design Experience using Matlab & Simulink", 27 March 2014.









# SOCIAL SERVICE

SSG, the Social Service Group of IIITDM puts social – awareness at the fore-front by very elegantly blending the importance of imparting acquired knowledge and extension of services to the less fortunate and also campaigns that promote environmental awareness to the country at large.

A computer awareness and learning sessions within our institute for students from classes 6th to 10th of schools around our institute was conducted by a group of volunteers. The participants were given an interactive theory session followed by hands-on exposure The goal is to teach problem solving strategies using computers. Participants will be given thought provoking puzzles to foster creative thinking. Our team motivated many young kids to take up engineering as a career. At the end, a Career Counseling session was conducted related to various fields.

Eye Screening Camp was arranged in our campus jointly with Dr.Agarwal Eye Hospital on 18th Nov 2013. Various ophthalmology tests were conducted for students, staff members, and senior citizens from the nearby villages also benefited out of this camp.

Polio Drop Drive was organized by SSG along with local medical officers. Our students gave technical assistance at various polio drop sites. The group has helped hundreds of babies to get benefitted by this polio drive in the nearby area.









Beach cleaning activity was organized by SSG in Jan 2014. SSG students created the awareness about the importance of keeping our ecosystem clean.





Blood donation camp was organized by SSG in association with Lion's Club. Enthusiastic response was seen by SSG and as many as 80 units were collected, which would eventually save at least 200 lives. The donors were inclusive of students, staffs and faculty members.



A tree plantation drive was organized by the institute under the auspices of the Social Service Group. The event was a huge success and saw active participation from students, staff and faculty members. The event was organized in coordination with Tamil Nadu Forest Department on 5th September 2013.









The guidance and counseling service unit of IIITD&M offers the following services spread throughout the year: Orientation programme, academic counseling and emotional counseling. The service unit consists of faculty and a dedicated team of students to ensure the welfare of the students by providing them with emotional and academic assistance.

Towards this end; two lectures were organized. Lecture on "Journey to Success" by Mr. S. Swaminathan, HRD Consultant and Director and "How to make things RIGHT" by Dr. Mrs. M. Vasuki, Counseling Psychologist



#### **YOGA CAMP**

Since IIITD&M academic ambience demands continuous learning and to ensure that our students handle them smoothly, various stress buster activities are organized during the academic year. One such popular activity is 'Yoga' which attracts a good lot of students amidst the busy academic and co-curricular schedule.



#### ANNUAL REPORT

## WEAKER SECTION WELFARE

The soft skills acquired from the program were focused at enhancing chances of securing employment during campus-placements and acing job-interviews. It put at forefront the importance of general aptitude that very intricately complements the technical knowledge. About 80 students participated to reap benefits from the program.

A well known speech motivator and skill developer, Mr. S. Swaminathan, from asktennali, had been invited to hold the programmes for the weaker section students.

Ministry of Social Justice and Empowerment has allotted fresh 10 slots for Top Class Education Scholarship for SC students for the year 2013-2014. Under the scheme, the Institute has distributed Rs. 15, 17, 130.00 to the SC students during the year 2013-2014. 18 students benefitted from the scheme.

Ministry of Tribal Affairs has allotted fresh 5 slots for Top Class Education Scholarship for ST students for the year 2013-2014. Under the scheme, the Institute has distributed Rs. 232603 to the ST students during the year 2013-2014. 4 students benefitted from the scheme.







### SCHOLARSHIPS & HINDI PAKHAWARA

Institute provides many scholarship opportunities to the deserving students of all categories with parental income not higher than Rs. 4.5 lakhs. Merit cum Mean Scholarship, and SC/ST scholarship the among most important schemes offered to the students. Around 30% of admitted students gets benefit annually from these scholarships.



A Hindi Pakhawara had been celebrated in the Institute during September 14 -28, 2013. During the said period, many events viz. essay writing, Debate, Typing etc. were conducted among the staff and students. The winner were awarded with prizes in the closing ceremony by the Chief Guest on Sept 30, 2013.



# SPORTS



Foundation Laying Stone by Shri Ashok Thakur, Secretary HE

Sports forms an integral part of our extracurricular activities and the foundation stone for the indoor sports complex was laid by Shri Ashok Thakur, Secretary MHRD, Govt. of India, who visited the institute on 20th September 2013.



Synthetic Tennis Court inaugurated...

The institute football team played a friendly match with neighboring Tagore Engineering College in September 2013. Further to admissions of first year students, intra department events in cricket, football and volleyball were conducted during September to serve as a feeder to the various institute teams that would represent in inter institute competitions.



View of the proposed Indoor Sports Complex

### Twaran-2014

#### **IIITD&M WINS THIRD PLACE**

'Twaran' is an inter sports meet conducted annually at IIITM Gwalior and our students continue to excel in various sports. Overall, IIITD&M stood at third place. Some of the highlights include:

- Sasang received BEST ATHLETE AWARD.
- Sasang won Gold Medal for Marathon Run.
- Ramesh won Silver Medal for 100 mts.
- Divya Sri won Gold Medal for 200 mts.
- Relay team won Silver Medal.
- Table Tennis team won Silver Medal.

For IIITD&M, Twaran gives a good break amidst tight academic schedule. IIITD&M fielded Twaran with 15 strong teams and won third place with 960 points. Our Medals Tally include 3 gold, 8 silver and 3 bronze medals.

Mr. B Purushotaman of M.Des, secured Silver Medal in the weightlifting competition conducted by IIT Madras on 29th September 2013. This is second instance of our institute student coming out with flying colours at the Annual Weightlifting competition organized by the IIT Madras Institute Gymkhana Club.



IIITM – Gwalior	1320
SPA Delhi	1160
IIITDM – Kanchipuram	960
IIIT Delhi	570
BIET Jhansi	320
SSN Chennai	300
IIIT – Allahabad	170
NIT Delhi	150







## INTERNATIONAL INTERACTION

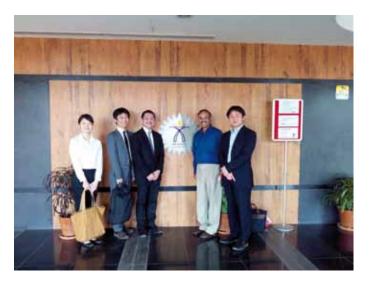
#### **MoUs WITH REPUTED INSTITUTIONS**

IIITD&M Kancheepuram encourages collaboration with reputed academic and research organizations to create opportunities for cooperation in education, training and research on the basis of promoting faculty and student exchanges and joint R&D activities. In this process, the Institute has signed MoUs with the following Institutions and many other such programmes are on the anvil.

- The University of Geneva, Italy
- The University of Catania, Italy
- The Nagaoka University of Technology, Japan
- HITACHI, Japan

Prof M Okazaki from Nagaoka University of Technology, Japan visited the institute in December 2013. The institute is already in an MoU with Nagaoka University of Technology to collaborate in areas of design and manufacturing research Prof. M Okazaki delivered a talk on research and academic opportunities in Japan and briefed the audience on various avenues that were open as part of the MoU. The visit coincided with the process of renewal of the contract, for a further period of three years.









## INFRASTRUCTURE AT PERMANENT CAMPUS



Master Plan of Compact Modern Energy Efficient GRIHA Rated Campus...

In 2010, IIITDM Construction work began with construction of PEMS structures for housing Academic Blocks, Hostels for Boys and Girls and Dining Hall. Bird's eye-view of PEMS is shown below.

During the year 2013-14, Institute has made a giant leap in development of Infrastructure, with a sizeable increase in the project works completed / undertaken. This has been the result of our unwavering commitment and coordination efforts to the highest levels with executing agency. Our endeavours ensure that all work is replete within the time-constraints, budget and always above expectations. What you see on the right is master plan to house 6000 studentswith optimun land utilization as a self sustained campus.

Institute's master plan of boasts of 2,98,311 Sq.m. built up area in 51.75 acres in which a total of 1,42,000 m2 built-up area in Phase-I construction is taken up. Phase I master plan comprises of the Administration Block, Lab Complex, Lecture Hall Complex, Cafeteria, Guest House, Transit Hostel, Shopping Centre, Medical Inspection Room, Boys Hostel, Girls Hostel, Faculty and Staff Housing, Auditorium, Indoor Sports Complex, Outdoor play fields, water treatment plant, sewage treatment plant, substations, road, horticultural-works, date network with wi-fi, LAN, IBMS, Photo voltaic cell power plant, Electric H.T. Substation with boxup generation, Centralised HUAC system, etc

Our endeavours ensure that all work is replete within the timeconstraints, budget and always above expectations.

The figure on the right is the master plan whereby housing of 6000 students with optimum land utilization is achieved through a self-sustained campus.

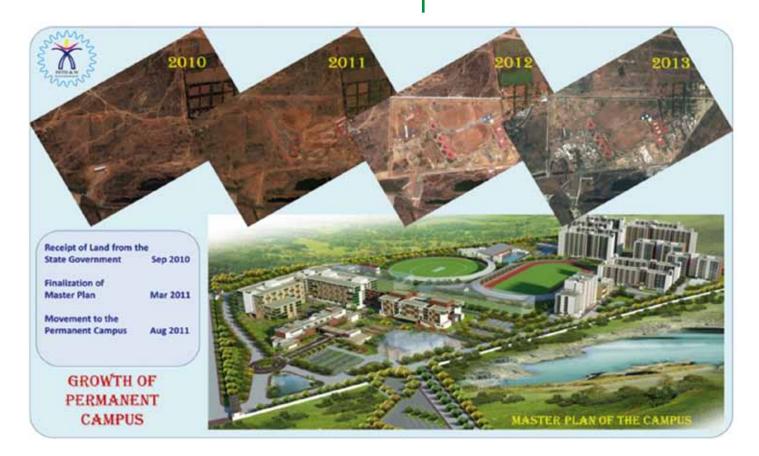
Institute's master plan boasts of....



Main Entrance (GATE A) opened in Jan 2014

#### ANNUAL REPORT

## GROWTH OF THE PERMANENT CAMPUS







## GROWTH OF THE PERMANENT CAMPUS



Moved to the permanent campus within six months from the land allotment



Phase I of the Permanent Hostel Buildings were constructed

### ANNUAL REPORT

Various buildings in the State of the art modern energy efficient campus were put into usage within 3 years from the land allotment date





## ADMINISTRATIVE BLOCK

### ADMINISTRATION BLOCK INAUGURATED ON 9 DEC 2013



- Centrally air-conditioned with variable volume control
- Optimum day light (As per GRIHA guidelines)
- Double Glazed Units to reduce heat gain
- Sensor operated glazed doors
- CCTV camera, access controls systems and FIRE alarms for security
- Wi-Fi and LAN connections
- Centralized RO + UV treated water
- Occupational sensors and day light sensors to reduce energy consumption
- Sensor control systems for sanitary fixtures to optimize water usage in rest rooms





## CAFETERIA





- 200 SEATING CAPACITY -Modern cafeteria with semi open spaces.
- Continuous supply of RO +UV treated water
- Solar heated Steam cooking
- Cooking waste disposal -Bio-digester work has already been sanctioned and Tender is floated.



## STATE OF THE ART SEWERAGE TREATMENT PLANT- 950 KLD

### Centralized sewerage treatment plant- 950 KLD





- Technology for STP envisaged is MBBR (Moving Bed Bio Reactor) with ULTRAFILTARION BY MBR (Membrane Bio Reactor).
- A sewage treatment plant of 950 KLD with phase wise planning of electro-mechanical equipment is proposed. MBBR units are atomized with programmable logic controllers.
- Reuse of treated water for flushing, HVAC, horticulture and fire fighting.
- Sludge is treated with press filters and will be disposed as manure to horticulture



### ACADEMIC BLOCK – NEARING COMPLETION

### Class room complex – Work is in progress





- 3no.-200 seats, 3no.-100 seats and 19no.-60 seats
- 12 No. laboratory
- Optimum day light (As per GRIHA guidelines)
- Double Glazed Units to reduce heat gain.
- Combination of vitrified and granite flooring to enhance aesthetics.
- Provision for central air-conditioning and digital class rooms
- Wi-Fi and LAN and state of art audio-video facilities
- Knowledge net work of UGC .
- Presentation halls with complete acoustic insulation.
- Audio visual hall with state of art furniture's.
- Solar lighting As an alternate source of energy.



### DINING BLOCK – NEARING COMPLETION



- Centralized dining hall with1200 seating capacity
- Furnished with contemporary Kitchen equipments
- Solar heated Steam cooking
- Continuous supply of RO +UV treated water
- Fine dining 50 seating capacity
- G+4 Construction for Phase -1 Structure designed for G+6
- Expected completion date July 2014.





## 14 STORIED BOYS HOSTEL-NEARING COMPLETION



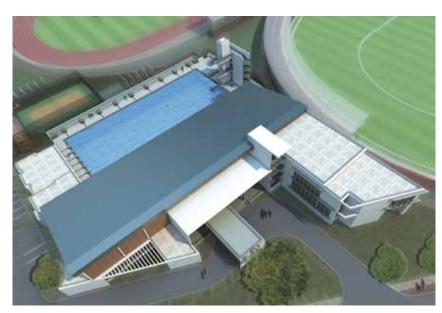


### **TOTAL NUMBER OF BEDS 703**

- Optimum day light
- Each Room is provided with wardrobes.
- Furnished with well designed cot, chair and table.
- Combination of vitrified and granite flooring to enhance aesthetics and easy maintenance.
- Adequate lifts, fire alarm and fire safety provisions.
- All the rooms are provided with LAN and common areas with Wi-Fi for effective learning.
- All sanitary fittings are sensor operated for efficient water management
- Continuous supply of RO +UV treated water.
- Social activity and play areas to enhances interaction among hostel inmates.



## INDOOR SPORTS COMPLEX-WORKS IN PROGRESS



## STATE OF ART INDOOR SPORTS COMPLEX

- Basket Ball-1 No.
  Badminton court-2 No,
- Squash court (Doubles)-1 No.
- Squash court (Singles)-1 No.
- Gymnasium-1 No.
- Table tennis room-1 nos.(4 table)

