Indian Institute of Technology Jodhpur

Annual Report

2012 - 2013

CONTENTS

Foreword

This annual report presents the developments that took place in the institute in the year 2012-13. It was an year of steady progress in all spheres ranging from academics to gaining momentum in the construction of our permanent campus. At present, the institute offers B.Tech. programme in Computer Science and Engineering, Electrical Engineering, Mechanical Engineering, and Systems Science, and M.Tech. and Ph.D. programmes in Centre of Excellence in Energy, Centre of Excellence in Information and Communication Technology (ICT), and the Centre of Excellence in Systems Science (SS). The institute is looking forward to offering a B.Tech. and a Ph.D. programme in Biologically-inspired Systems Science from the ensuing academic year.

Promoting inter-disciplinary culture in each and every academic activity has been our tradition. Therefore, the institute has not adopted the structure of academic departments based on the individual disciplines. Accordingly, IIT Jodhpur is committed to developing state of the art, research-led and multidisciplinary centres of excellence where scholars from different disciplines carry out productive research on emerging and technological, scientific, and social issues that characterize the challenges faced by the contemporary world. The CoEs create a distinctive interdisciplinary and collaborative learning environment, giving our students a global outlook and holistic problem-solving approach. We aim to produce students who are highly innovative and entrepreneurial, and are proud that last year some of our students were hired by some of the best national and international companies. Our four Centres of Excellence in - Energy, Information and Communication Technology, Systems Science, Biologically-inspired Systems Science mark our distinctive inter-disciplinary culture.

The institute remains a locus of vibrant academic activities. Academic seminars, workshops, and lectures from experts belonging to various fields contribute substantially to the intellectual vigour prevailing in the campus. The research at IIT Jodhpur is focused on solving socio-economic problems and creating cost-effective technological solutions. With the help of our collaborators, the vision of our faculty, and a team of highly motivated students we aim to make IIT Jodhpur one of the premier institutes in the world. We are very proud of our students, faculty, and visiting faculty from around the country and the world.

At present, the institute is functioning from a temporary campus in MBM Engineering College, Ratanada, Jodhpur. We are looking forward to our own campus near Nagaur in Jodhpur which will be coming up soon. While being in temporary campus we are committed to making steady progress in the areas of excellence we have prioritized for ourselves. However, much remains to be done to uphold our mark of a premier educational institute in India. This calls for shouldering of responsibilities in their right earnest perspective from each and every individual associated with our institute. Following sections in this report present the academic and administrative steps taken in the direction of development.

Prof. Prem K. Kalra
Director

ORGANIZATION

BOARD OF GOVERNORS

Chairman

Professor Goverdhan Mehta (FNA, FRS)
University of Hyderabad
Department of Organic Chemistry,
Central University PO,
Hyderabad - 500 046,
Andhra Pradesh

Director (Ex-officio)

Professor Prem K. Kalra
Director, IIT Jodhpur
Old Residency Road, Ratanada,
Jodhpur – 342011

Member-Nominees of the IIT Council

Professor Pankaj Chandra
Indian Institute of Management,
Bangalore 560076

Dr. K. Vijay Raghavan
Director,
National Centre for Biological Science
Bangalore 560076

Mr. Kiran Karnik
Former President of NASSCOM,
New Delhi 110016

Mr. D. R. Mehta
Founder & Chief Patron,
Bhagwan Mahavir Viklang Sahayta Samiti,
13a-Gurunanak Path, Malviya Nagar,
Jaipur – Rajasthan

State Government Nominee

Mr. Rajeev Swarup
Principal Secretary, Higher & Technical Education
Government of Rajasthan Jaipur, Rajasthan

FINANCE COMMITTEE

Chairman

Professor Goverdhan Mehta (FNA, FRS)
University of Hyderabad
Department of Organic Chemistry,
Central University PO,
Hyderabad - 500 046,
Andhra Pradesh

Members

Professor Prem K. Kalra
Director, IIT Jodhpur
Old Residency Road, Ratanada,
Jodhpur - 342011

Mr. G. S. Sood
CMD National Scheduled Tribe,
NBCC Tower, Finance & Development
Hall No 1, 5th Floor, 15 Bhikaji Cama Place
New Delhi 110 066

Mr. Umesh Kumar (IAS)
N-1, Ghandinagar
Bajaj Nagar Road,
Jaipur 302015

Bureau Head (Technical Education)
Additional Secretary
Department of Higher Education
Ministry of Human Research Development, Shastri Bhawan
New Delhi - 110001

Financial Advisor, MHRD
Additional Secretary & Financial Advisor,
Department of Higher Education
Ministry of Human Research Development, Shastri Bhawan
New Delhi - 110001

BUILDING AND WORKS COMMITTEE

Chairman

Professor Prem K. Kalra
Director, IIT Jodhpur
Old Residency Road, Ratanada,
Jodhpur – 342011

Members

Mr. N.M.D. Jain
ADG, CPWD (Retd.),
170, 1st Floor, Jagriti Enclave,
Delhi

Ms. Usha Kasana
Chief Architect,
Public Works Department
Government of Rajasthan
Jacob Road
Jaipur

Academic Committee

The committee co-ordinates all UG programmes with representatives from each discipline and PG programmes through the respective CoEs. Library matters also fall under this purview.

Members

Dr. B. Venkata Ramana (Coordinator)
Dr. Deepak M. Fulwani (Coordinator, PG Programmes)
Dr. Barun Pratiher (CoE Energy)
Dr. Ambesh Dixit (CoE Energy)
Mr. Anupam Gupta (CoE ICT)
Dr. Arnab Datta (CoE ICT)
Dr. Satyabrata Adhikari (CoE SS)
Dr. Subhashish Banerjee (CoE SS)
Dr. Meenu Chhabra (CoE BISS)
Dr. Sushmita Jha (CoE BISS)
Dr. Laltu Chandra (Coordinator, Library)
Dr. Anand Plapally (International Student Exchange)
Dr. Gourishankar Hiremath
Two Student Represetatives: Mahesh Chand Gurjar and Heena Rathore

Student Affairs

Dr. Rahul Chhibber (Coordinator)
Dr. Amit Mishra (WAVES)
Dr. P. Pradeep Kumar (NUTS)
Dr. Vidya Sarveswaran and Dr. Sushmita Jha (Counselling Service)
Dr. Shree Prakash Tiwari and Dr. S. Harinipriya (SAGE)
Dr. V.V.M.S. Chandramouli (PROM)
Student Representatives: Shivam Verma, Narendra Kumar, Aditya Ranjan, Prince Gupta, Manu Agrawal, and Sidharth Jain

Library Committee

Dr. Mainak Mazumdar (Coordinator)
Dr. Subhashish Banerjee (Member from Systems Science CoE)
Dr. Anil Kumar Tiwari (Member from ICT CoE)
Dr. Laltu Chandra (Member from Energy CoE)

Dr. Ansu Louis (Member from BISS CoE)
Dr. Kshema Prakash (Deputy Librarian)

Council of Wardens: Hostels, House Allotment and Guesthouse

Dr. Akhilesh Mohan (Chairman)
Dr. Satyabrata Adhikari
Dr. Meenu Chhabra
Dr. Sushmita Jha
Dr. Anand Krishnan Plapally
Dr. Gourishankar Hiremath
Dr. Rahul Chhiber
Dr. V. Narayanan
Dr. V. Hari Narayanan
Dr. Atul Kumar
Dr. K. J. George
Dr. Ashutosh Kumar Alok
Dr. S. P. Tiwari

Placement: Student Placement and Internships

Dr. Gaurav Harit (Coordinator)
Dr. P. Pradeep Kumar
Dr. Mainak Mazumdar
Dr. Anand Krishnan Plapally
Two Student Representatives: Tanmay Sethi, Manish Jain

Administration

This committee deals with media and public relations, non-academic staff recruitment, RTI, Hindi Cell, Health/Medical, space allocation, security, legal cell, finance, stores and purchases, institute functions, outreach activities, facility management.

Members

Dr. Rajiv Shekhar (Coordinator)
Dr. K. J. George (Security)
Dr. Anil Kumar Tiwari (Health)

Dr. Rahul Singhal (Non-academic staff recruitment)
Dr. Atul Kumar (Facility management)
Dr. Atul Dubey (Legal Cell)
Dr. C. M. Nagaraja (RTI)
Dr. Ashutosh Kumar Alok (Outreach)
Dr. Vivek Vijayvargiya (Media and Public)
Dr. Bibhas Adhikari (Institute Functions)
Dr. Puneet Sharma (Hindi Cell)
Dr. Tanmay Paul

Research and Development

All project management (consultancy, sponsored, testing services, IPR, MoUs, Enterpreneurship, incubation and innovation, workshops and conferences, continuing education, tech transfer.

Members
Dr. B. Ravindra (Coordinator)
Dr. V. Narayanan (Sponsored workshops)
Dr. Ravindra Arora (Policy issues)
Dr. Rakesh Kumar Sharma (Recruitment and Automation)
Dr. Sonam Mehrotra (IP, MoUs, Corporate Communications)
Dr. Rakesh Saxena (Stores and Purchases)
Dr. S. Harinipriya and Dr. Sandeep Kumar Yadav (Innovation and Incubation)

Faculty Affairs

Faculty recruitment, probation and regularization, students feedback, CPDA approvals, LTC and Leave, faculty meetings.

Members
Dr. Vivek Vijayvargiya (Coordinator)
Dr. V. Hari Narayanan (CPDA)
Dr. Shaligram Tiwari (LTC and Leave)
Dr. Manish Shrimali (Faculty Meetings and Students Feedback)
Dr. Ansu Louis (Faculty Exchange)

Coordinators of each CoE: Dr. Bibhas Adhikari, Dr. Vivek Vijayvargiya (SS), Dr. B. Venkata Ramana, Dr. Sandeep Kumar Yadav (ICT), Dr. Manish

Shrimali, Dr. Meenu Chhabra (BiSS), Prof. Rajiv Shekhar, and Dr. B. Ravindra (Energy)

Lab Development

This committee looks after development of UG and PG Labs in the institute.
Dr. Sandeep Kumar Yadav (Coordinator)
Dr. Ashutosh Kumar Alok (CoE SS)
Dr. Deepak Fulwani (CoE SS)
Dr. Amit Mishra (CoE BiSS)
Dr. Meenu Chhabra (CoE BiSS)
Dr. C. M. Nagaraja (CoE Energy)
Dr. P. Pradeep Kumar (CoE Energy)
Dr. Anil Kumar Tiwari (CoE ICT)
Mr. Anupam Gupta (CoE ICT)

Automation

Dr. Rakesh Kumar Sharma (Coordinator)
Dr. C. M. Nagaraja
Dr. Atul Dubey
Dr. Ambesh Dixit
Dr. Kiran Kumar Rajashekhar Hiremath
Dr. Pushkar Shripad Joglekar
Dr. Gaurav Harit

Student Council

President, SCHoD	Ranveer Singh
General Executive, SAGE	Sudhir Singh
General Executive, NUTS	Rahul Kumar
General Executive, MAD	Wins Goyal
General Executive, WAVES	Rahul Rathore
General Executive, PROM	Akhil Arora
Fourth Year Senators	Saurabh Singh
	Vinith Vemana
Third Year Senators	Kalpnath Rao
	Yeravothula Rohith
Second Year Senators	Navneet Mittal
	Saurabh Pandey
First Year Senator	Tarun Devi Reddy
Girls Senator	Snehlata Joshi
M.Tech. Senator	Zeeshan Ahmed
Ph.D. Senator	Belal Usmani

Academics

- **Academic Programmes**
- **Centres of Excellence**
- **International Relations**
- **R & D Projects**
- **Undergraduate Research & Innovation Programme (UGRI)**
- **High School Summer Camp**
- **Conferences and Workshops**
- **Innovation & Incubation**
- **Short-Term Courses**
- **Weekly Academic Seminars**
- **Scholarship for Students**
- **Foreign Language Training**
- **Student Internship**

Academic Programmes

IIT Jodhpur offers five Bachelor of Technology (B.Tech.) programmes, namely:

(1) B.Tech. Computer Science and Engineering
(2) B.Tech. Electrical Engineering
(3) B.Tech. Mechanical Engineering
(4) B.Tech. Systems Science
(5) B.Tech. Biologically Inspired Systems Science

The duration of B. Tech programmes is 4 years. The objectives of these undergraduate programmes are to:

1. To provide fundamental concepts to students in technology and science,
2. To promote spirit of free and objective enquiry in the field of study, and
3. To contribute towards development of skilled technical manpower to address the technological needs of the nation.

In addition to the B. Tech. programme, the Institute also offers two-year M.Tech. programmes in the following centres:

1. Centre for Energy
2. Centre for Information and Communication Technologies (ICT)
3. Centre for Systems Science (SS)

The aim of the Ph.D. programme at IIT Jodhpur is to develop graduates having good knowledge and research training in classical and emerging areas. IIT Jodhpur has organized the research activity in two sets, in namely, (a) *Classical Areas*: individual disciplines of engineering, science and humanities and social sciences, and (b) *Emerging Areas:* domains of research centers of the Institute.

Ph.D. programmes currently offered by IIT Jodhpur:

Classical Areas	Emerging Areas
Computer Science and Engineering	Biologically-Inspired Systems Science
Electrical Engineering	Energy
Mechanical Engineering	Information and Communication Technologies
Mathematics	Systems Science
Physics	
Chemistry	
Biology	
Humanities and Social Sciences	

Centres of Excellence

IIT Jodhpur is committed to developing state of the art, research-led and multidisciplinary centres of excellence where scholars from different disciplines carry out productive research on emerging and technological, scientific, and social issues that characterize the challenges faced by the contemporary world. In order to promote the inter-disciplinary culture in each and every academic activity, IIT Jodhpur does not adopt the structure of establishing the academic departments based on the individual disciplines. Only undergraduate programmes are offered in the individual disciplines.

Presently, IIT Jodhpur has four Centres of Excellence in the following areas:

1. Energy
2. Information and Communication Technology
3. Systems Science, and
4. Biologically-inspired Systems Science

Centre of Excellence in Energy

Introduction

The objective of CoE in Energy is to provide diverse energy solutions with a significant focus on solar energy. The goals include globalized research and development activities, indigenisation of technology for various subsystems and realization of product development in the areas of Solar Thermal and Photovoltaic research.

With an interdisciplinary approach that combines sciences and engineering, the research activities of the centre fall under four different areas namely:

1. Solar Thermal Design and Analysis
2. Material Design and Fabrication
3. Smart Grid for Photovoltaic and Solar Thermals
4. Structural Design

Academic Curriculum

The academic curriculum has compulsory and elective components. Compulsory courses expose students to (i) different mechanical and electrical processes related to power generation and transmission, (ii) physics of

semiconductor devices associated with solar photovoltaics, and (iii) concepts of systems engineering for designing complex projects by integrating knowledge from different sub-systems. Extensive laboratory experiments and projects supplement the compulsory courses. The electives allow students to choose from a variety of courses based on their interests: solar and nuclear power, bioenergy systems, electrochemical power sources, power electronics, energy materials, structural dynamics, two-phase flow, and solar refrigeration and air-conditioning. Summer bridge courses are offered to students immediately after their admission to prepare them for the multi-disciplinary compulsory courses offered in the first semester.

Research and Development

Research and development efforts focus on the development of low-cost technology initiatives to implement renewable energy generation and usage through extensive industry-academia collaboration. Being located in Jodhpur, the sun city of India, harnessing solar energy for power generation and cooling/heating has been the primary focus of the R&D efforts under the auspices of the Centre for Solar Energy Technologies (CSET).

The International Centre for Application of Solar Energy Technologies (ICASET) is a joint initiative of the Asian Development Bank (ADB) and the Indian Institute of Technology Jodhpur, Jodhpur (IITJ).
Funding for ICASET has been provided by ADB.

CSET has been designated as a Centre of Excellence in Solar Thermal Energy by the Ministry of New and Renewable Energy (MNRE), Govt. of India. IIT Jodhpur has earmarked a 200 acre land on its permanent campus for creating a solar park, comprising various technologies under one roof. The CSET will consist of (i) Solar thermal and solar PV Technology Demonstration Units (TDUs), (ii) facilities for R&D for developing value-added applications of solar energy technologies, (iii) facilities for testing, calibration and benchmarking for both solar thermal and solar PV technologies, and (iv) HRD and knowledge services. CSET is geared to giving its students a vibrant, laboratory-to-plant scale research experience. Major grants to CSET have been received from MNRE and the Asian Development Bank.

The institute has Memoranda of Understanding (MoU) with AREVA, CEA France, Indian Oil Limited, BHEL, Thermax, NFTDC-Hyderabad for collaboration in R&D in energy. Further, the centre has Academic and Research collaboration agreements with the University of Waterloo, University of California, Merced, University of Western Ontario, URV Tarragona, Spain.

Major Research Themes and Goals

- Solar absorber coatings and thermic fluids
- Volumetric air receivers for heat and power generation
- Thermal storage
- DC smart micro-grid
- Characterization of crystalline and amorphous silicon based photovoltaic power systems.
- Electrochemical power sources and storage focussing on lithium ion batteries and fuel cells
- Hydrogen generation by water splitting
- Solar cooling

Associated Faculty as on 31 March 2013

- Dr. Ambesh Dixit
- Dr. Anand Krishnan Plapally
- Dr. Barun Pratiher
- Dr. Gourishankar Hiremath
- Dr. Laltu Chandra
- Dr. V. Narayanan

- Dr. P. Pradeep Kumar
- Dr. Prodyut Ranjan Chakraborty
- Dr. Rahul Chhibber
- Dr. Rajiv Shekhar
- Dr. Rakesh Saxena
- Dr. B. Ravindra
- Dr. Ravindra Arora
- Dr. Shaligram Tiwari
- Dr. Vidya Sarveswaran

Centre of Excellence in Information and Communication Technology (ICT)

Introduction

Education, knowledge, information, and communication are at the core of human progress, endeavour, and well-being. Information and Communication Technology (ICT) has an immense impact on virtually all aspects of our lives. The rapid progress of ICT opens up completely new opportunities to attain higher levels of development. For the first time in history, the capacity of these technologies to reduce many traditional obstacles, especially those of time and distance, has been recognized in such a way that millions of people in all corners of the world would benefit. Yet this Centre of Excellence holds the view that ICT should be regarded as a tool and not as an end in itself. Under favourable conditions, the technology can be a powerful instrument for increasing productivity, generating economic growth, for job creation and employability, and also for improving the quality of life of all.

The CoE in ICT strives for developing innovative and sustainable Information and Communication Technology (ICT) based solutions for addressing the socio-economic and environmental problems. Centre of Excellence in Information and Communication Technology (CoE in ICT) offers multidisciplinary research and academic programmes in the domain of Information and Communication Technology and their theoretical foundations. The research activities are broadly categorized under three research axes:

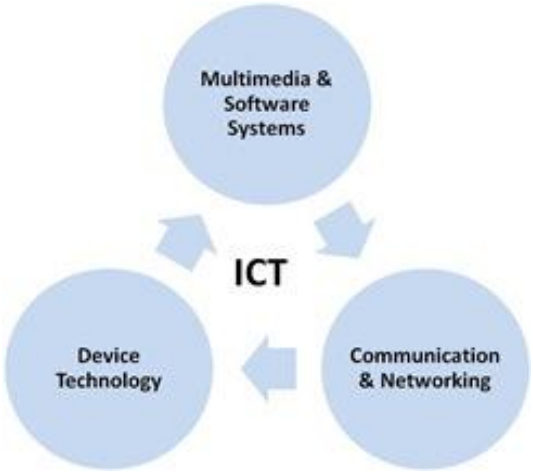
- Communication and Networks
- Device Technology
- Multimedia and Software Systems

Major Goals of the Centre

- To develop skilled and competitive human resources through high quality academic programmes in ICT.
- To conduct fundamental and applied research in the areas of ICT in collaboration with Government, Private Sector and International organizations.
- To develop functionality driven low-cost ICT solutions for building inclusive societies.

Research Themes

- Developing low-cost networking solutions - cheaper internet everywhere.
- Developing low-cost access devices.
- Developing low-cost e-Healthcare solutions.
    - Computer Vision/ Signal Processing/ Medical Imaging
- Hardware Design and Benchmarking.
    - Embedded Systems
        - Low cost Access Devices for Education/Health Monitoring
    - Micro/ Nano-Electronics
        - System-on-Chip
        - EDA tools
    - Instrumentation and Testing
    - Robotics and Automation
    - Biomimetics
- Sustaining environment through ICT
- Networks/ Sensor Networks



The CoE in ICT is an inter-disciplinary venture. It hosts the top-notch scientists with a background ranging from mathematical sciences, natural sciences to applied fields of systems engineering, and other disciplines of engineering. It works to solve social problems, and these problems are highly inter-disciplinary in nature.

The centre started M. Tech. Programme in ICT in the academic year 2011-12. Twenty-six students were admitted to the programme. Thirteen Ph.D. students also joined the centre in this academic year. The centre also initiated two laboratories—Networking Technologies Lab and SOC Lab. The centre's achievements include providing the right hardware and software tools for many industry consultancy projects, including the development of DRM/DRM+ IP for digital radio standards.

Associated Faculty as on 31 March 2013

- Dr. Abhishek Mishra
- Dr. Akhilesh Mohan
- Dr. Ananya Debnath
- Dr. Anil Kumar Tiwari
- Dr. Arnab Datta
- Dr. Gaurav Harit
- Dr. Mahesh Kumar
- Dr. Sandeep Kumar Yadav
- Dr. Shanmuganathan Raman
- Dr. Shree Prakash Tiwari
- Dr. Venkata Ramana Badarla
- Dr. Vivek Dixit

Centre of Excellence in Systems Science

Introduction

The Centre of Excellence in Systems Science IIT Jodhpur from its very inception in 2011 has aimed to promote and implement interdisciplinary education and research by adopting a holistic systems thinking approach. The Centre upholds its vision of transforming students into young trained graduates who are imbibed with the spirit of systems thinking in diverse domains of engineered systems, natural systems, and financial systems. At present, there are 18 energetic and dedicated faculty members in the Centre. The areas of research of the Centre include quantitative finance, quantum information, complex networks and systems, nonlinear dynamics and chaos, chemical reaction dynamics, graph algorithms, and image processing. The Centre has been actively engaged in organizing conferences, workshops both at the national and international level.

The Centre had started Ph.D. and B. Tech. programme in 2011, and subsequently commenced M. Tech. programme in 2012. The programmes aim at creating systems thinkers, who can develop, construct, model, operate, redesign, verify and integrate various systems. The Centre collaborates with other Centres of Excellence at IIT Jodhpur in research and courses at B. Tech. and M. Tech. level in various semesters of programmes hosted by those Centres.

Given the wide scope and applicability of Systems Science, the centre has identified certain key focal areas in its research agenda:

- Evaluate the cost effectiveness of the engineered systems and manufacturing processes that are becoming increasingly complex;
- Develop rigorous mathematical frameworks that give a deeper insight into a lot of interesting and complex problems in natural sciences;
- Investigate the isomorphy of ideas, laws, and models in various fields of science and engineering;
- Develop new methods for the forecasting and quantification of uncertainties in lieu of societal concerns that have led to regulatory actions for more stringent requirements for the safety and reliability of products demand;
- Process large scale data in order to extract better information and knowledge.

However, keeping in mind factors such as the emerging challenges for the Indian economy due to globalization, the growing concern for sustainable

development because of the limited availability of resources, and the increasing sensitivity to anthropogenic effects on the environment, the CoE would also continually analyze and evaluate its activities in a broader social context, over and above the basic concerns presented above.

Research Themes

- Quantitative Finance
- Quantum Information
- Nonlinear Dynamics and Chaos
- Complex Networks and Systems

Academic Programmes

Since one of the principal objectives of the CoE is to undertake cutting-edge research, the centre has developed curriculum in System Science to provide high quality academic training to students and make them distinguished scholars in the field of SS. To fulfill this objective the centre offers B.Tech., M.Tech., and Ph.D. programmes in Systems Science. The curriculum of B.Tech. programme has been developed after conducting several brain-storming sessions or 'discussions hours' organized regularly in the year 2011. After a few rounds of discussions the present curriculum for B.Tech. was finalized in the brain-storming session organized from 9-10 December 2011. Several experts from reputed industries and distinguished scholars from various academics institutes in India were invited in these sessions to develop a coherent and balanced curriculum for B.Tech. and M.Tech. programmes keeping in view the requirement of the industry and what is 'state-of-the-art' in the discipline of Systems Science.

Further, in the workshop on **Systems Science: Complex Networks & Applications**, conducted from 7-9 May, 2012 the course curriculum of M.Tech. and Ph.D. programmes were further debated and discussed before they were finalized and launched. Given the interdisciplinary nature of the subject, the Systems Science centre of IIT Jodhpur has an agglomeration of faculty members from various disciplines such as Mathematics, Physics, Chemistry, Economics, System & Control, and Mechanical Engineering etc. Systems Science core programme has a rich blend of courses focusing on:

- Networks
- Systems Dynamics, Design and Management
- Financial Engineering

Associated Faculty Members as on 31 March 2013

- Dr. Ashutosh Kumar Alok
- Dr. Atul Kumar
- Dr. Bibhas Adhikari
- Dr. Kiran Kumar Rajashekhar Hiremath
- Dr. Mainak Mazumdar
- Dr. Manikandan Paranjothy
- Dr. Puneet Sharma
- Dr. Pushkar Shripad Joglekar
- Dr. Rakesh Kumar Sharma
- Dr. S. Harinipriya
- Dr. Satyabrata Adhikari
- Dr. Subhashish Banerjee
- Dr. Vivek Vijayvargiya
- Dr. V.V.M.S. Chandramouli

Centre of Excellence in Biologically-inspired Systems Science (BISS)

Introduction

The Board of Governors of IIT Jodhpur in its 5th meeting held on 13th September, 2011 has approved B.Tech., M.Tech., and Ph.D. programmes in Biologically-inspired Systems Science (BiSS). The centre aspires to create 21st century creative thinkers equipped with core strengths in engineering, biology, and humanities for the exploration of the ever fascinating phenomenon of cognition and consciousness considered unique to living organisms. Unravelling the mystery behind the phenomenon of cognition and consciousness would help develop 'Intelligent Systems' capable of interfacing with humans.

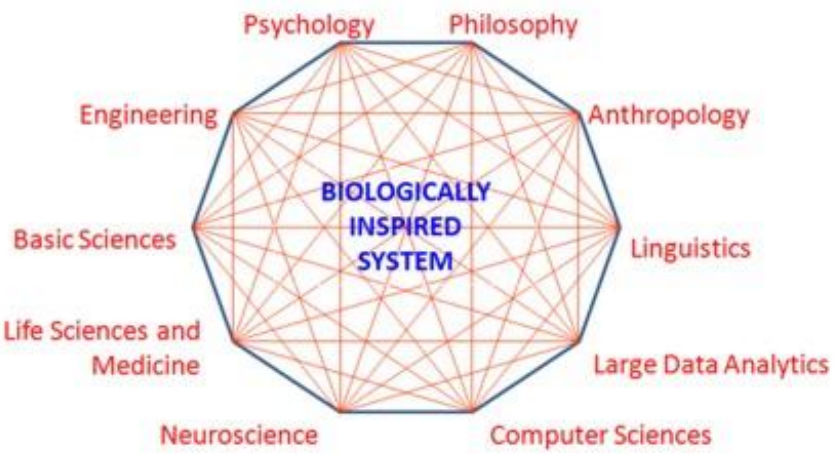
The broad objective of the centre is to design novel, adaptive, and sustainable technological solutions inspired by biological systems and processes. Understanding biological systems will help an engineer to design adaptive intelligent systems for the ever changing environment. The major characteristic of this centre is its strong interdisciplinary approach. With such an interdisciplinary approach, the centre seeks to promote holistic

development of innovative technological solutions. The area of research in the centre are development of environmentally compatible materials, smart sensors with advanced surveillance systems, improved diagnostic and better therapeutic technology.

Keeping in view the vision and mission of IIT Jodhpur, the centre invited educationalists and researchers from all over the world to give suggestions for designing the most compatible undergraduate and postgraduate course modules for BiSS during the academic year 2011-12. An international workshop in **Biologically-inspired Systems Science** (1-3 March, 2012) and individual lectures from experts in the area were organized to develop the concept notes and the course curriculum.

Major Research Themes and Initiatives

1. Biological information processing and propoagation in a network;
2. Neuroscience and the role of protein assemblies for therapeutics & biomaterials;
3. Cognitive studies through philosophy and psychology;
4. Emergent phenomenon of consciousness;
5. Bio-inspired modelling and designing, algorithms, mechanics, real world applications;
6. Cellular and Molecular Neuroscience and Computational Neuroscience.



The CoE BiSS is looking forward to offering a four year bachelor's (B. Tech.) programme and a doctoral programme starting from July 2013.

Associated Members as on 31 March 2013

- Dr. Amit Mishra
- Dr. Ananya Debnath
- Dr. Ankita Sharma
- Dr. Ansu Louis
- Dr. K. J. George
- Dr. Manish Shrimali
- Dr. Meenu Chhabra
- Dr. Monika Sinha
- Dr. Samanwita Pal
- Dr. Satyajit Sahu
- Dr. Sonam Mehrotra
- Dr. Sushmita Jha
- Dr. V. Hari Narayanan

International Relations

Memoranda of Understanding (MoU) between IIT Jodhpur and International and National Institutions, and Agencies

1. **University of Western Ontario, Canada (09/08/2010)**
   To explore the possibilities for cooperation in education, training, and research and also to encourage direct contact and mutual cooperation between faculty members, departments, and research centres.

2. **Universitat Rovira I Virgili, Tarrgona, Spain (29/08/2010)**
   Development of mutually beneficial academic programme and courses; coordination of academic staff travel for the purposes of teaching, research, and training; cooperation of student mobility programme for study, research, and for joint academic activities such as research publications, conferences and symposia; exchange of documentation and research materials in the field of mutual interest provided that there are no legal barriers against exchange and collaboration in international master's and doctoral programmes between both the institutions.

3. **The Commissariat a I'Energie Atomique et aux Energies Alternatives France (22/11/10)**
   Cooperation in the areas of solar energy research, such as Concentrated Solar Power (CSP) and Concentrated Photovoltic (CPV), water production by using solar energy, renewable energy storage and smart management, integration of solar energies and energy efficiency in buildings.

4. **University of Waterloo, Canada (25/11/2010)**
   Collaborative measures to foster international experience and advancement of knowledge on the basis of reciprocity, mutual benefit, interaction and exchange of students in graduate programmes.

5. **University of Manitoba, Canada (09/12/2010)**
   Development of mutually beneficial programmes for student internships and graduate study in order to provide students opportunities for advancement of knowledge and international experience.

6. **Embassy of France in India (28/03/2011)**
   For exploring prospective domains for students and scholars to learn French language effectively.

7. **University of California, Merced (26/04/2011)**
   Development of mutually beneficial relationships for promoting academic exchange, scholarly cooperation, and collaborations under mutually agreeable terms and conditions: the exchange of faculty members, scientists and students and scientific material, access to library resources, pursuit of joint meetings, symposia and/or conferences and access to laboratories as may be appropriate and feasible in the two institutes.

8. **Arid Forest Research Institute, Jodhpur, India (15-08-2011)**
   Development of sheltering belt plantation as urban forestry model for at a selected site at IIT Jodhpur.

9. **Institute of Science and Technology, Nara, Japan (28/02/2012)**
   To promote academic exchanges in fields where each party needs to enhance its educational and academic programmes: the academic exchanges will include, implementation of collaborative research, joint symposia, lectures and education and exchange of scholars, researchers, and administrative staff; exchange of information in fields

which are of interest to both parties and exchange of graduate students in fields of interest to both parties.

Memoranda of Understanding (MoU) with Industries

1. **National Instruments (NI) Systems (India) Pvt. Ltd. Bangalore (dated 25/11/2010)**
   National Instruments and IIT Jodhpur work together through research and development to develop the Institute as well-recognized centre of excellence in the fields of wireless communication and physical layer technologies. Furthermore, National Instruments, being the supplier of computer-based instrumentation hardware and software product developed by its affiliated both from the academia and industry, expressed its desire to establish a graphical system design centre for students and professionals across the nation.

2. **Areva Renouvelable, France (dated 06/12/2010)**
   Cooperation in R&D area, such as characterization of reflector, dirtying rates and soiling materials in relationship with local air quality; development of a DNI measurement survey laboratory and techniques for assaying the date to predict and optimize CSP performance; clouds detection and anticipation methods and techniques to adapt CSP process control operating conditions for maximizing energy production; development of a testing and bench marking laboratory for solar systems with due attention to Areva Renouvelable technology in the Indian context.

3. **C-Wet and SRRA (dated 10/05/2011)**
   Collaboration in establishing a solar radiation resource assessment station.

4. **Bharat Heavy Electricals Limites (BHEL), Indian Oil Corporation Limited (IOC) (dated 17/10/2011)**
   Collaborate for the promotion of research, innovation, and education and providing a model for industry-academia partnership in the following broad objectives: Basic research in solar energy and up-scaling performance validation of solar technologies.

5. **ITI Limited (dated 16/12/2011)**
   To introduce co-operative development and research in areas such as Optical Communication including free space Optical communication, Encryption technologies, embedded systems, SCADA and NMS system, and radio and microwave communications.

6. **Amaitha Wireless Technologies (dated 02/02/2012)**
   Cooperation in the conceptualization, design and development of computing, communication, and converged devices associated software and required functionality affordable in optimum cost.

7. **Quad Electronics Private Limited (dated 14/01/2012)**
   Cooperation in research and development computing and communication devices that can be of interest to the entire population and can serve to bridge digital divide of India.

8. **Steag Energy Services (SESI) (dated 23/04/2012)**
   Mutual agreement for the development of a dynamic solar thermal simulator and collaboration for research and training on the solar thermal simulator.

R& D Projects

Faculty members at IIT Jodhpur are also engaged in various projects that relate to research and development, and consultancy with other national and international organizations. Ongoing project and projects sanctioned during 2012-13 are:

Spondored Projects

1. *The Village Community Network: Technology Development and Pilot Roll out Plan for Low Cost Opportunistic Communication Networks for Rural Areas of India*. Sponsored by the Ministry of Human Resources Development (MHRD). Principal Investigator: **Prof. P.K. Kalra**, Dr. K.S. Daya.
2. *E-Books on Introduction to High Energy Physics, Introduction to Astroparticle Physics and Instrumentation Methods in Astroparticle Physics.* Sponsored by the Ministry of Human Resources Development (MHRD). Principal Investigator: **Prof. P.K. Kalra**, Dr. S. Bhatnagar.
3. *Development of Low Cost Mobile Robots - Robotics for Education*. Sponsored by the Ministry of Human Resources Development (MHRD). Principal Investigator: **Dr. Swagat Kumar**, Dr. Sandeep Kumar Yadav.
4. *Development of Analysis and Indexing Tools for Harnessing Educational Videos.* Sponsored by the Ministry of Human Resources Development (MHRD). Principal Investigator: **Dr. Gaurav Harit**, Dr. Anil K. Tiwari.

5. *Language, Cognition & the Human Mind.* Sponsored by the Indian Council of Philosophical Research & MHRD. Principal Investigator: **Dr. V. Hari Narayanan.**
6. *Conceptualization and Design Study for Freespace Material Characterization Facility.* Sponsored by Defence Research & Development Organization, Jodhpur. Principal Investigator: **Dr. Akhilesh Mohan.**
7. *Identification, assessment and Characterization of E3 Ubiquitin Ligases and Molecular Chaperones Implicated in Neurogenerative Diseases.* Sponsored by the Department of Science & Technology (DST). Principal Investogator: **Dr. Amit Mishra**
8. *Establishment of the Centre of Excellence in Solar Thermal Research and Education.* Sponsored by the Ministry of New & Renewable Energy. Principal Investigator: **Prof. Rajiv Shekhar**
9. *Study of Aligned CNT/Polymer Nanocomposites for Hydrogen Storage.* Sposored by the Science and Engineering Research Board (DST). Principal Investigator: **Dr. Balram Tripathi**
10. *Generation, Storage and Distribution of Solar Hydrogen.* Sponsored by the Department of Science & Technology. Principal Investigator: **Dr. Rakesh Kumar Sharma**
11. *Advancement in Nuclear Reactor Design Pertaining to NRFCC.* Sponsored by the Department of Atomic Energy. Principal Investigator: **Dr. Vivek Vijayvargiya**
12. *Reproductive Child Health.* Sponsored by UNICEF, Jaipur Branch. Principal Investigator: **Dr. Sandeep Kumar Yadav**
13. *Molecular Sensors: Synthesis and Anion Recognition Studies.* Sponsored by the Science & Engineering Research Board (DST). Principal Investigator: **Dr. Rakesh Kumar Sharma**
14. *IOC-BHEL-IITJ CSP Plant.* Sponsored by the Indian Oil Corporation Limited. Principal Investigator: **Prof. Rajiv Shekhar**
15. *Development of Programmable Emulator for Photovoltaic Plant to Facilitate Complex Testing Requirements.* Sponsored by the Science and Engineering Research Board (DST). Principal Investigator: **Dr. Deepak M. Fulwani**
16. *Innovation and Incubation Centre.* Sponsored by the Rajasthan State Government with IIT Jodhpur. Principal Investigator: **Dr. Sandeep Kumar Yadav**
17. *Asymmetric Hydrogenation on Carbon Nanotube Surface.* Sponsored by the Department of Science & Technology (DST). Principal Investigator: **Dr. Rakesh Kumar Sharma**
18. *Hunting of New Physics through b-> S Transitions.* Sponsored by Council of Scientific & Industrial Research, New Delhi. Principal Investigator: **Dr. Ashutosh Kumar Alok**
19. *Developing Dielectric Semiconductor Combinations and Processes for Flexible Organic Electronics.* Sponsored by the Science and Engineering Research Board (DST). Principal Investigator: **Dr. Shree Prakash Tiwari**

20. *Performance of Solar Power Plants in India-Data Collection, Analysis and Interpretation.* Sposored by Shakti Sustainable Energy Foundation, New Delhi. Principal Investigator: **Dr. S. Harinipriya**
21. *Link Budget Estimator Project.* Sponsored by Weapons & Electronics Systems Engineering Establishment, Ministry of Defence. Principal Investigator: **Dr. Sandeep Kumar Yadav**
22. *Synchrony Based Evolution of Various Biological and Artificial Systems to Understand Complex Computational Aspects.* Sponsored by the Department of Science & Technology (DST). Principal Investigator: **Dr. Satyajit Sahu**
23. *Development of III-Nitrides this Film(s) for High Frequency Saw Device Applications.* Sponsored by the Department of Space. Principal Investigator: **Dr. Ambesh Dixit**
24. *Heritage Erasmus Mundus Programme.* Sponsored by A.C. DEL, ECOLE, Germany. Principal Investigator: **Dr. Kiran Kumar Rajashekhar Hiremath.**

Consultancy Projects

1. *One Stop Educational Portal.* Sponsored by Chattisgarh Infotech & Biotech Promotion Society. Principal Investigator: **Prof. P.K. Kalra**, Dr. Sandeep Kumar Yadav.
2. *Development of Intelligent Instrumentation and Cellular Communication Courses.* Sponsored by NI Systems (I) Pvt. Ltd., Bangalore. Principal Investigator: **Dr. Sandeep Kumar Yadav.**
3. *Development of DRM/DRM+ Standards.* Sponsored by NI Systems (I) Pvt. Ltd., Bangalore. Principal Investigator: **Dr. Sandeep Kumar Yadav.**
4. *Development of Prototype of Microbial Fuel cells.* Sponsored by Panasonic R&D Centre of India. Principal Investigator: **Dr. S. Harinipriya**
5. *Barmer.* Sponsored by World BPO Forum, US. Principal Investigator: **Dr. Sandeep Kumar Yadav**
6. *Design of Circular Waveguide to Coaxial Transition and Dipole Probe for E-Field Measurement.* Sponsored by Defence Research & Development Organization, Jodhpur. Principal Investigator: **Dr. Akhilesh Mohan**
7. *Energy Efficiency Investigations in Shree Cement Plant.* Shree Cement Plant, Kolkata. Principal Investigator: **Prof. Rajiv Shekhar**.

Undergraduate Research & Innovation Programme (UGRI- 2012)

Indian Institute of Technology Jodhpur started the Undergraduate Research and Innovation (UGRI) programme in 2011 with the objective to promote research and innovation among a diverse group of undergraduate students. This programme continued in summer of 2012 to help selected students improve their professional knowledge and skills. Students across the country were encouraged to utilize the UGRI programme for their academic and professional developments. This year the institute received nearly 730 applications, four times more than those received in the previous year. Best 29 students had been selected from this large pool of applications for the UGRI 2012. Students were selected purely on the basis of academic achievements and the merit of the proposal submitted, whether it be a theoretical (system design, algorithm development etc.) or an experimental one.

This year's UGRI programme began on May 8, 2012 and ended on July 20, 2012 (for duration of 10 weeks). Selected students were provided accommodation in students' hostel at IIT Jodhpur. During this period, a remuneration of Rs. 8000 per month was offered as financial assistance to the participants. Furthermore, the students received an additional Rs. 2000 for preparing posters and interim reports. The students worked on projects related to Energy, Health, Environment, and ICT (Information and Communication Technologies).

High School Summer Camp

During summers IIT Jodhpur invites applications from senior secondary students (Class XI or XII) from schools in Jodhpur with an intention to nurture their curiosity to know the unknown. In doing so, the faculty members of the institute answer their queries and expose them to state-of-the-art technologies. Students possessing Class X marksheet are eligible to apply. Upon successful completion of the programme, a certificate is awarded to each participant.

In the summer of 2012, twenty one students were selected through a screening process based mainly on their Class X academic records. The selected students spent almost one month at IIT Jodhpur— from 2nd to 30th of June—participating in lectures, workshops, lab sessions, group works and field visits. At the end of the programme, all these students participated in a

poster presentation which displayed their learning during their stay at IIT Jodhpur.

Conferences and Workshops

Workshop on Systems Science: Complex Networks and Applications

May 07-09, 2012

IIT Jodhpur organized this workshop to explore recent trends in complex network and to make a bridge between academia and industry. The workshop provided a broad overview of the area with illustrative applications from various fields.

Major Topics of Discussion were the following:

- Complex Networks: Theory and Applications
- Random Graphs and Complex Networks
- Topology and Dynamics of Complex Networks
- Evolutionary Dynamics on Complex Networks
- Information and Communication Networks
- Social Networks, Biological Networks, etc

Delegates from Industries and R&D organizations and Researchers/Academicians from all over the India participated in the workshop. Through lectures, presentation of case studies and interactive sessions, participants were be exposed to the emerging field of complex networks.

Solar Radiation Resource Assessment and Modelling Workshop

August 07 – 09, 2012

The commercial viability of a solar power plant is critically dependent on the accuracy of predicting solar insolation on a daily/hourly basis over several years. This requires a good working knowledge of solar radiation measurement techniques, data mining, and developing mathematical models based on statistical and artificial intelligence techniques. This workshop was organized to (i) understand solar measurements, (ii) evaluate the quality of a data set, and (iii) model radiation data. The focus of the workshop was an understanding of how to design and deploy a measurement campaign, how to avoid many pitfalls of solar measurements, techniques to identify measurement problems and keep a measurement station producing the best possible data, and develop a predictive mathematical model for radiation for use in designing solar projects. The topics discussed in this workshops are,

- Solar Radiation Concepts and Methods
- Solar Radiation Data Quality and Use of Data in Projects
- In Depth Station Set Up and Operations

The participants included Mr. Stephen Wilcox, Prof. Prem K. Kalra, Prof. Neeraj Misra, Prof. Amit Mitra, Prof. Laxmidhar Behera, Dr. Vivek Vijay.

National Workshop on Biologically Inspired System Science

September 29 - 30, 2012

The purpose of this workshop *"Biologically Inspired System Science"*is to seek inputs from educationalists and researchers in designing the undergraduate and postgraduate course curriculums for Biologically Inspired System Science (BISS) programme. The topics discussed in the workshops are as follows,

- Neuroscience and Cognition
- Psychology and Neuropsychology
- Quantum Information and Physics of Consciousness
- History and Philosophy of Science
- Biosignal Processing
- Machine learning and Intelligent Systems
- Dynamical Systems
- Hierarchical Systems

The organizing committee included Dr. Ambesh Dixit, Dr. Amit Mishra, Dr. Ansu Louis, Dr. Hari Narayan, Dr. K. J. George, Dr. Manish Shrimali (Convener), Dr. Meenu Chhabra, (Convener), Dr. Rahul Singhal, Dr. Sonam Mehrotra and Dr. Sushmita Jha. The participants are Dr. A S Majumdar, Dr. Arun Murthi, Dr. Arvind Mathur, Dr. Dulal Panda, Dr. Harish Karnick, Dr. Jamuna Rajeswaran, Dr. Karmeshu, Dr. Nandini Singh, Dr. Nirmalangshu Mukherjee, Dr. Raju Bapi, Dr. R. Srikanth, Dr. Sangeetha Menon, Dr. Sanjeev Misra, Dr. Shobini Rao, Dr. Sneha Anand and Dr. Tanusree Dutta.

International Workshop on Art, Culture and Heritage

December 08-10, 2012

IIT Jodhpur is committed to the development of state of the art, research-led, multidisciplinary centre. Scholars from diverse disciplines engage in a spectrum of research activities ranging from the scientific to the aesthetic. This workshop is an attempt to study and understand the syntheses that can occur between fine arts and technology. The workshop aimed at formulation of

curriculum in the broad areas of Art, Culture and Heritage with a technological perspective. The topics discussed during the workshop are:

- Architecture
- Literature
- Music
- Visual Arts
- Performing Arts

The participants included Prof. David Rosenboom, Dr. Matteo Dellepiane, Prof. Pallabi Chakravorty, Prof. Joan Erdman, Prof. S N Balagangadhara, Prof. Nina Sabnani, Prof. S. Swaminathan, Mridangam Maestro Shri T R Rajamani, Prof. Roberto Scopigno, Prof. Marcello Balzani, Dr. M. Nandini, Dr. M. Lalitha, Prof. V.Sanil, Dr. Shantala Hegde, Prof. Subhendu Ghosh, Prof. Kiran Seth, Dr. Srinivasan Krishnaswamy, Dr. Koumudi P Patil, Prof. Sunita Singh Sengupta. The organizing committee was Prof. Prem K. Kalra, Dr Ansu Louis, Dr Anand K Plappally, Dr Hari Narayanan, Dr Mainak Mazumdar, Dr Rahul Singhal, Dr Bibhas Adhikari, Dr Vidya Sarveswaran, Dr Puneet Sharma, Dr Atul Kumar, Dr Rahul Singhal, Dr Shanmuganathan Raman, Dr Ashutosh Alok, Dr Vivek Vijay, Prof K. K. Dua; Dr S P Tiwari; Dr Manish Shrimali; Dr Sonam Mehrotra, Dr Sushmita Jha; Dr Satyabrata Adhikari; Dr VVMS Chandramouli; Dr Gaurav Harit, Dr K J George, Dr Gourishanker Hiremath and Dr. S. Harinipriya.

Quantum Biology Workshop

January 25 – 27, 2013

This international workshop to witness and evaluate the interaction, transformation and integration that occur between Quantum mechanics and biological sciences. The analysis and characterization of biological systems from the perspective of quantum mechanics is a nascent area of research. The workshop attempts to cover a gamut of themes ranging from understanding the mechanism of photo-synthesis, quantum tunnelling, quantum processes related to olfactory functions for the development of better performing artificial systems.At IIT Jodhpur, this workshop not only provides exciting insights in these new areas of research, but also provides a platform to initiate this interdisciplinary research both at the national and international levels. The following were the broad areas of discussion at the workshop:

- The possible reasons behind the efficieny of photo-synthesis
- Artificial photo synthetic systems & production of bio-fuels
- Quantum mechanics, decoherence in biological systems & applications to quantum computing
- Quntum consciousness
- Role of DNA in storing information

The participants included Prof. Jasper Knoester, Prof.Andreas Buchleitner, Prof. Pramod S. Joag, Prof. Prem Kalra, Dr. Satyajit Sahu, Dr. Ashutosh Kumar Alok, Dr. Atul Kumar, Dr. Satyabrata Adhikari, Dr. Sonam Mehrotra, Prof.Jayendra N Bandyopadhyay, Prof.Makis Skoulakis, Prof.Akihito Ishizaki, Prof.Jack Tuszynski, Prof. R. Srikanth, Prof. Yasser Omar, Prof. Susana Huelga, Prof. Rienk Van Grondelle, Prof.Karoline Weisner, Prof.Sisir Roy, Prof. Apoorva D. Patel, Prof. K L Sebastian.

All participants appreciated the unique approach of the centre to integrate different disciplines of engineering, science, and humanities. Based on the expert feedback the proposed curriculum was modified.

International Workshop on Computational Materials Design and Engineering

February 08-10, 2013

The recent advances in the development of novel materials and coexistence of multifunctionality in the same system may exhibit potential for novel devices based on new concepts and engineering over conventional materials. The conventional approach for such developments relies on time consuming

iterative processes to address the right solution. This demands new modeling methodologies to understand and engineer the material's properties at atomic, molecular and crystal levels. This workshop aimed at focusing new approaches in conjunction with multi-scale modelling which allows mimicking real systems to handle the challenges in designing novel materials for applications. The valuable suggestions from invited experts were used to envisage and design a relevant academic programme, in accordance with the multidisciplinary approach at IIT Jodhpur. The major topics of discussions were as follows:

- Materials design through experiments and simulations
- Electronic Structure Theory
- Spectroscopy of Complex Materials
- Thermoelectrics
- Hydrogen Storage
- Functional Nanomaterials

The participants wereProf. Indarnil Manna, Prof. G. P. Das, Prof. Shobhana Narsimhan , Prof. Sushil Auluck, Prof. Dilip G. Kanhere, Prof. Abhishek Singh, Dr. Vijay Kumar, Prof. Manoj Harbola, Prof Priya Mahadevan, Prof. Indra Dasgupta, Porf. Charles Patterson, Dr S. Pannala, Dr. David J Singh, Prof G P Srivastava, Prof Arun Bansil, Prof Richard Martin, Prof Shiraishi Kenji, Prof. Dr. Arno Schindlmayr, Prof. Mattias Klintenberg, Prof. Seiji Yunoki, Prof. Hiroshi Mizuseki, Dr. Sandro Scandolo, Dr. Luca Ghiringhelli.

Innovation and Incubation Centre

Established in August 2011, the Innovation and Incubation Centre, under the name I.D.E.A.S. (Innovators Destination for Entrepreneurship and Amelioration of Society), of IIT Jodhpur seeks to provide a continuous momentum towards promoting innovation in entrepreneurship. For the next ten years, I.D.E.A.S. has entered into collaboration with the State Government of Rajasthan, which has agreed to partially fund the incubatees.

The Innovation and Incubation Centre of IIT Jodhpur seeks to provide continuous momentum toward promoting innovation in entrepreneurship. IIT Jodhpur seeks to be an academic incubator and provides support to students in developing business ideas that address the unattended issues prevalent in our society. It aims to provide young talented students with a platform where they can bring forward their ideas in the field of science and

engineering and showcase the same to industry experts to get their assistance in developing a model. The centre intends to nurture young minds and help their ideas gain ground through channelized guidance and mentorship by industry experts. We wish to give engineering students and industry practitioners an opportunity to interact and build a community of innovative potential.

Short-Term Courses

IIT Jodhpur conducts several short courses for the students during summer and winter breaks. As the institute receives visiting experts from a wide variety of background, the students derive benefit of such visiting and serving faculties by exposing themselves to different areas of academics and research by means of these short courses. Following are the summer and winter short courses that were delivered during 2012-13:

Summer Courses

Sl. No.	Name of the Course	Conducting Faculty
1.	Mathematics-I	Dr. Kiran Hiremath
2.	Physics-I	Dr. V. Narayanan
3.	Physics-II	Dr. V. Narayanan
4.	Mathematics-II	Dr. Kiran Hiremath, Dr. Puneet Sharma
5.	Chemistry	Dr. Rakesh Sharma
6.	Engg. Economics	Dr. Pratibha Bhargava
7.	Introduction to Biology	Dr. Sushmita Jha, Dr. Amit Mishra
8.	Engg. Graphics	Dr. P. R. Chakraborty, Barun Pratiher
9.	Probability & Statistics	Dr. Vivek Vijayvargiya, Dr. Venkat Appal Raju
10.	Advanced Mechanics of Solids	Prof. Rakesh Saxena, Dr. Bimal Roy

11.	Computer Networks	Dr. Venkata Ramana
12.	Physics-III	Dr. S. Banerjee, Dr. A. Alok
13.	Introduction to Electrical Engg.	Dr. Vivek Dixit, Dr. Neeraj Gupta
14.	Information Theory	Dr. Anupam Gupta
15.	Electric Stress Dependent Behaviour of Dielectrics	Prof. Ravindra Arora
16.	Optoelectronics	Dr. Mahesh Kumar
17.	Principles of Quantum Mechanics	Dr. P. Manikandan
18.	Introduction to Numerical Heat and Fluid flow	Dr. P. R. Chakraborty
19.	Modeling and Analysis of Biological Complex Systems	Dr. Ganesh Bagler
20.	History and Philosophy of Science	Dr. K J George
21.	Solar Resource Assesment and Forecasting	Dr. B Ravindra
22.	Introduction to Art and Science of Negotiation	Dr. Harinipriya
23.	Technical Communication	Dr. Ansu Louis, Dr. Vidya
24.	Research Methodology	Dr. S. Banerjee, Dr. K. J. George
25.	System Design and Integration Lab	Dr. Rahul Chhibber, Dr. Ganesh Bagler
26.	Enery-Water Nexus	Dr. Anand Krishnan Plapally

Winter Courses

Sl. No.	**Name of the Course**	**Conducting Faculty**
1.	Technical Communications	Dr. Ansu Louis
2.	Research Methodology	Dr. Sushmita Jha
3.	Cloud Computing	Dr. Amey P. Ghokhle
4.	Basics of Sustainable Development	Dr. Vittarino Belpoliti
5.	Noise and Vibration: A Practical Approach	Dr. Neil Popplewell
6.	Multivariate Data Analysis	Dr. Herb Debban

Weekly Academic Seminars

The Indian Institute of Technology Jodhpur nurtures a distinct vision of achieving conglomeration among diverse academic spaces resulting in congruity between technology, society, and humanity. Beyond the constrained frame of the graduate curriculum, the institute envisions the holistic development of students along with their attaining of a deeper insight into manifold academic disciplines. The institute has been conducting three kinds of weekly academic seminars. In order to provide students exposure to cutting edge research, recent developments in industrial and business sectors, social work, arts and culture, the institute conducts Institute Seminars by renowned professionals and experts in different fields. To promote interdisciplinary research and interaction between and among faculty members and students, the faculty members present and discuss their research interests at weekly faculty seminars. And to provide students and faculty a platform to present their insights and recent academic activities, each CoE has its own weekly seminars.

Scholarship for Students

IIT Jodhpur awards Merit-Cum-Means (MCM) scholarship to the undergraduate students belonging to General and OBC categories. The selection is based on both merit and parental income. Any student with a parental income of less than Rs. 4.5 lakhs per annum may be eligible for the scholarship. MCM scholarship involves full tuition fee waiver and an additional amount of Rs 1000/-per month. In the academic year 2011-2012

Students belonging to SC/ST categories are given, in addition to tuition fee waiver, exemption from hostel dues (both mess and room charges) and a pocket allowance of Rs. 250/-per month. In the academic year 2011-2012, 30 MCM scholarships were awarded in the GEN/OBC category, and 8 in the SC/ST category. And 24 free tuitionships were also awarded.

Foreign Language Training

With support from the French Embassy, IIT Jodhpur offers a zero credit compulsory course in French language for first year students. Furthermore, the state-of-the-art language lab of the institute could now help students in learning major foreign languages.

Internships of Students

Summer internships provide opprotunities for students to gain experience in their discipline, determine if they have an interest in a aparticular career, and create a network of contacts. Internship is an integral part of curriculum for the pre-final year students, nevertheless, all B.Tech. and M.Tech. students are encouraged to take up internships to add to their educational experience. When students do an eight-week summer training in reputed organizations, in India or abroad, they learn newer skills and technology; adopt them in theory undergraduate projects and use them to bring a change and serve the community. In this way, the companies offering them internships also gain extensively due to the availability of novel perspectives, fresh ideas and specialized strengths and skill sets of the incoming students that are sure to augment the abilities of the company workforce.

In the 2012-13 many of our students were placed for summer internships in several reputed companies and for research projects in universities abroad. Some of our students participated in research projects in other IITs as well. Details of 2012-13 Summer Internships are as follow:

Roll No.	Name of student	Institute / Organization	Project Title
J09001	Abhinav Dadhich	Panasonic R&D Labs	NFC based android app for health care
J09002	Abhinav Piprotar	Escorts Agri Machinery, Faridabad	Fatigue testing of components and strain measurement during loading, Noise & vibration testing of engine and tractor
UG2010 12001	Abhinav Panwar	Hindustan Aeronautics Limited, Bangalore	Engine Components Manufacturing Systems
J09004	Abhishek Verma	Panasonic R&D Labs	Prototype development of "NFC based Android Application" for Healthcare
J09006	Akanksha Saran	École Polytechnique Fédérale De Lausanne, Switzerland	The Frugal FPGA: Design and analysis of a resource efficient FPGA architecture
J09007	Akash Deep	University of Manitoba	Multi Terminal HVDC Control
J09009	Akshay Harikumar	Tata Johnson Control Ltd., Chennai	Time analysis of fragment cutting process.
J09011	Amit Lonkar	Motilal Oswal Asset Management, Mumbai	Optimisation in multi-asset class portfolio
J09026	Amulya Sai, B.	National Instruments, Bangalore	Automatic Inspection Of Automated Clusters

J09016	Ankit Gupta	University of Manitoba, Winnipeg	Frequency response characterization of Nafion using electrostatic force microscopy
J09019	Anurup Ganguli	University of Western Ontario, Canada	Design and fabrication of offshore Wind turbine and its wind tunnel testing
J09020	Ashish Aseri	DRDO, Defence Laboratory, Jodhpur	3D Visualisation using VTK
J09022	Ashok Banjara	Non Ferrous Materials Technology Development Centre (NFTDC), Hyderabad	Testing and analysis of die cast copper rotor induction motor
J09027	Bhaskar Puri	Panasonic R&D Labs	Scalable Distributed Water Management System
J09029	Boobalan, G.	Non Ferrous Materials Technology Development Centre (NFTDC), Hyderabad	Testing and Analysis of Copper Rotor Induction Motor
J09034	Gaurav Kumar	Escorts Agri Machinery, Knowledge Management Centre, Faridabad	Fatigue testing of components and strain measurement during loading, Noise & vibration testing of engine and tractor
J09035	Gaurav Siwach	Nara Institute of Technology, Japan	Adaptive Robotic Clothing Assistance
J09036	Gautam Bajaj	Hi-Tech Robotics Systemz Ltd,	Autonomous Navigation Using ROS
J09038	Govind Agarwal	Nara Institute of Technology, Japan	Human Position Tracking
J09040	Gundre Vaibhav Pralhad	Advanced Systems Laboratory, DRDO, Hyderabad	Thermal analysis of a diffuser section
UG2010 12017	Hemant Verma	IIT Roorkee	Design and Development of Single Phase SPWM Inverter
J09043	Jatin Goyal	Fiat India Ltd.	Analysis of Lean Manufacturing System and Production Line
J09044	Jatin Rustagi	Panasonic R&D Labs	Display prototype of water classification
J09053	Kunal Chelani	University of British Columbia, Vancouver	Analysis of Harmonics in DC Smart Grid
J09054	Lakhan Singh Jatav	Thermax, Pune	Generalised solar tracking system of solar parabolic trough
J09057	Manish Kumar Jain	National University of Ireland, Maynooth	Optimal Contention Window for 802.11 Protocol

UG2010 11012	Manu Agarwal	IIT Delhi	Clustering on data points satisfying (c,e) approximation stability
J09061	Mohammed Aquibuddin Ahmed	Non Ferrous Materials Technology Development Centre (NFTDC), Hyderabad	Testing, modeling and analysis of three phase Induction Motor
J09065	Nikita Chopra	University of Western Ontario, London (Ontario)	Algorithm development for lung brachytherapy
J09069	Prafful Gupta	IIT Bombay	Design of Bandgap Voltage Reference for ultra-low supply voltage
J09070	Pranay Balar	Pontiflex India Pvt. Ltd., Bangalore	Configuration Service of the sign-up ad project
J09073	Prashant Shukla	Non Ferrous Materials Technology Development Centre (NFTDC), Hyderabad	Analysis of high heat flux transfer on tungsten mono-blocks
J09074	Pratesh Jhari	Panasonic R&D Labs	Efficiency Analysis of Wind catchers for Earth air Heat Exchanger
J09075	Prem Raj	University of California, Merced	Development of an embedded system for automation of HVAC
UG2010 11019	Prince Gupta	Electronics For You, New Delhi	Designing Low-Cost AVR Development Board Sun-Tracker with Angle Display using MCU
UG2010 11023	Rajat Jain	North Central Railways, Agra	
J09062	Rajni Yadav	University of Ulster	Tinnitus cancellation algorithm
J09089	Rameshwar Prasad Meghwal	Non Ferrous Materials Technology Development Centre (NFTDC), Hyderabad	Daily activity tracking system of employees of NFTDC using expert system concept
UG2010 10007	Ravi Kiran Godgu	Centre for Artificial Intelligence & Robotics (DRDO), Bangalore	Spatio Temporal Datamining
J09025	Rishi Kalyan Ayyer	Motilal Oswal Asset Management, Mumbai	Optimized Portfolio Creation
UG2010 11027	Rishi Kumar	Patratu Thermal Power Plant, Ramgarh (Jharkhand)	Power Generation Techniques
J09084	Ruchi Toshniwal	Nucleus Software, Noida	Data De-duplication Software
UG2010 12032	Sachin Gupta	Eicher Engines, Alwar	Reduction in Tool Inventory

J09088	Satyesh Jha	Panasonic R&D Labs	Efficiency Analysis of Windcatchers for Earth Air Heat Exchangers
UG2010 11031	Saurabh Santosh	Bokaro Thermal Power Plant, Bokaro	Power Generation Training
J09092	Shashank Kumar	IIT Bombay	Design and Implementation of a Hardware In The Loop [HILS] Simulator for Micro Aerial Vehicles [MAV] using Open Source Software JSBSim.
UG2010 12038	Snehlata Joshi	IIT Bombay	Bubble Size Measurement
J09097	Surendra Choudhary	Non Ferrous Materials Technology Development Centre (NFTDC), Hyderabad	Hydrogen Storage and Sorption Cooling using Waste Heat
J09099	Sushant Gaurav	Nara Institute of Technology, Japan	Grouping People and Recognizing their attributes
J09100	Syed Faizul Hai	National Instruments, Bangalore	Created a Labview VI to generate Chromaticity diagram and XYY color space (Summer Intern)
UG2010 12039	Tanmay Sethi	The Energy & Resources Institute, New Delhi	Solar Biomass Hybrid Cooling Cum Power Generation
J09102	Tokala Sai Teja	Nucleus Software, Noida	Data Deduplication
UG2010 10005	Trivikram Chaudhary	Centre for Artificial Intelligence & Robotics (DRDO), Bangalore	Spatio-Temporal Data Mining
J09104	Vaibhav Jain	National University of Ireland, Maynooth	Measuring Capture effect in wireless networks
UG2010 12041	Vasu Goenka	Tata Motors Limited	Wheel Alignment
J09016	Vinay Kumar	University of California, Merced	
UG2010 10038	Vinith Vemana	Centre for Artificial Intelligence & Robotics (DRDO), Bangalore	Spatio-Temporal Data Mining
UG2010 11044	Vivek Dubey	Nuclear Power Corporation of India Limited, Rawatbhata (Rajasthan)	In-plant training
J09107	Vivek Sharma	Innovation Labs, TCS, Gurgaon	Crowd Size Estimation using Image Processing
J09109	Zubin Sortee	Pontiflex India Ltd. Bangalore	Development of Help Module

Facilities

- **Present Campus**
  - **Academic Capmpus**
  - **Residential Area**
- **Permanent Campus**
- **Computer Centre**
- **Library**
- **Laboratories**
- **Health Centre**
- **Sports Facilities**
- **SC/ST and OBC Cell**
- **Hindi Cell**
- **Office Automation**

Present Campus

Presently, the institute functions from a temporary campus at Ratanada, in Jodhpur, Rajasthan. The campus has three blocks, Administrative Block, Academic Block-I, and Academic Block-II. In addition to the major administrative offices of the institute, a few laboratories are situated in the Administrative Block. In Academic Block-I are located several laboratories, computer centre, and the library. Academic Block-II has several halls for lectures, tutorial rooms, language laboratory, and cabins for Ph.D. students. The campus also has mess facility for students. The institute has already procured all the basic facilities required for its effective functioning and is consistently in the course of further development.

Residential Area

The residential area of IIT Jodhpur is situated by the New Pali Road in the outskirts of Jodhpur city. The area is divided into several student hostels, residential apartments of the Director, faculty, and staff, VVIP guest house, visitors' hostels etc. Round the clock security services keep the residential area safe and secure. A well-equipped health centre also functions here. In addition, the students enjoy facilities for both indoor and outdoor games at this area.

The residential area has a computer centre and all hostels are Wi-Fi enabled. And there is also a library, television rooms, and student activities centre to hosts several events. Moreover, the residential complex also houses several students-run clubs which nurture the creativity of students and initiate the celebration of several festivals. Also, one of the two student messes of IIT Jodhpur function here (the other one in the academic area). The mess offers good quality food at very affordable rates. The messes are regularly monitored by wardens to ensure hygiene and nutritional value.

The residential campus has a fully equipped visitors' hostel which provides boarding and lodging facilities for all the institute's guests, parents and guardians of students, and newly appointed faculty members. All rooms are air conditioned. The residential area has a branch of State Bank of India with an ATM counter. The institute has a bus service running between the Residential and Academic areas at regular intervals, exclusively for the students, faculty, and staff of the institute. And shops catering to various needs of the students, two general stores, one medical store, stationery, and a mobile phone accessories store operate in front of the residential area.

Permanent Campus

In the forthcoming years, the institute will be shifted to its own residential campus near Nagaur in Jodhpur. The government has acquired 872 acres of land for the institute and the construction of the boundary wall is being completed, and so is the 33 KV electric substation. An MoU has been signed with Arid Forest Research Institute for designing and developing an urban forestry model for the institute. The institute has successfully completed the selection of the campus master planner. It is envisioned that the new campus of IIT Jodhpur would stand as a symbol of academic excellence while creating a multi-cultural ethos with centres such as an Eco Village, an Arts and Culture Centre and an International Inter-Cultural Activity Centre, all of which would contribute to a holistic development of its community.

Computer Centre

The institute has a computer centre, presently running on a gigabit LAN with 1Gbps internet bandwidth. It provides all computing facilities for students and staff. There are several terminals running on Windows and GNU/Linux operating systems. The computer centre provides access to several licensed softwares like Matlab, Mathematica, Cadence, Mentor-Graphic, Ansys, PSCAD, Solidworks, orCad, etc. 802.11/b/g/n Wi-Fi is enabled in both the academic area and residential area, the computer centre hosts a high performance computing cluster for scientific research.

Computing Facilities

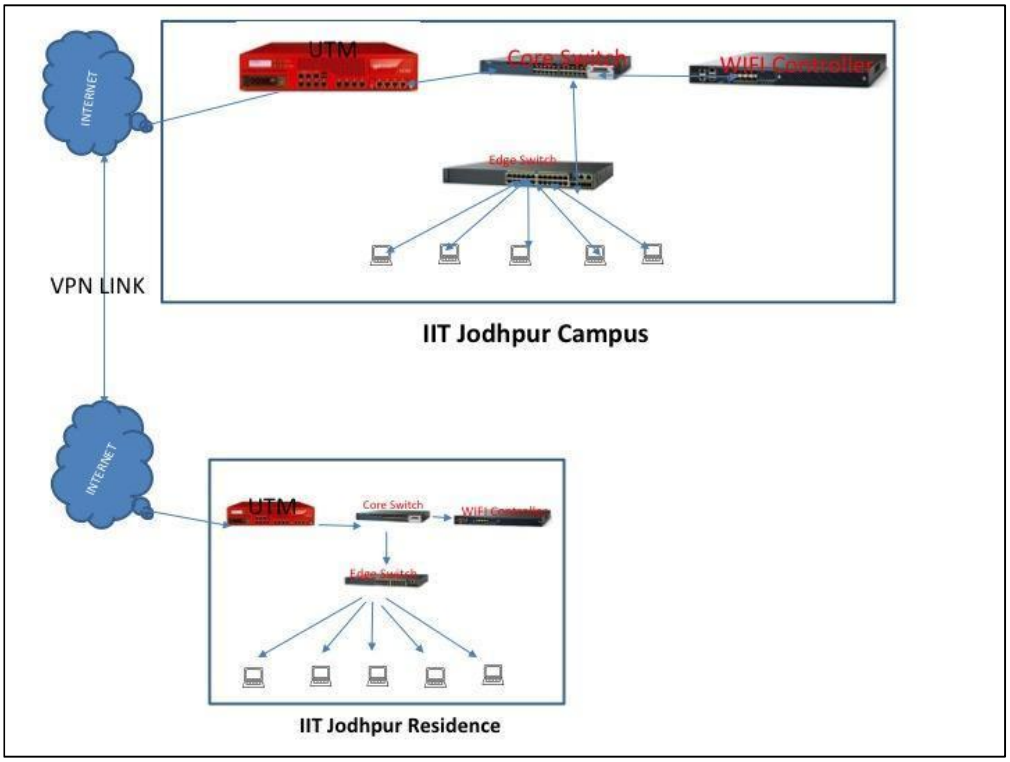
- Server E7-8837 processor 4*10 Core with 128 GB Ram (Fujitsu RX600 S6) – 4
- Workstation E5-2640 processor 2*6 Core With 64 GB Ram (fujitsu Celsius R920) – 2
- MAC Pro 21" Desktop - 1
- Printer (HP Laserjet 9040dn) – 1

Online Services (Automation)

- Ph.D and M.Tech Admission
- Transit hostel booking
- Faculty leave
- Student leave
- Student Bonafide
- Vehicle booking
- Centralized authentication server (LDAP)

Network Facilities

- Gigabit Network switch (Cisco 2960-s) – 6
- Internet access authentication



Library

The Library supports all teaching and research activities of the institute by facilitating- acquisition, organization and dissemination of knowledge resources, and also providing library & information services to IIT Jodhpur community at large. It is located on the ground floor in room nos. 1001 and 1011, Academic Block I of the academic campus of IIT Jodhpur. The Library works under the guidance of the Institute's Library Committee.

Library Collection

Books: The library has rapidly growing collection of more than 10,000 volumes of books (approx). These include the textbooks, reference & research materials.

Number of Books		
Collection	*Additions in 2012-13*	*Total collection (as on March 31, 2013)*
Central Library	1561	7975
Book Bank	205	1986
GPRA Library	360	520
Total no. of books added during 2012-13	2126	

Journals& Databases: The Library subscribes to a wide range of scholarly journals/databases from various sources, as detailed in Digital Library section of this document. More details of these resources are available on the library website. The Library also subscribes to some of the popular magazines and dailies.

Services and Facilities

Member Services: The library provides facilities and services to all registered students, faculties, staff members of IIT Jodhpur. Additionally, the library also provides services and facilities to visiting faculties to IIT Jodhpur. Assistance in locating reading material, orientation to new users is also provided by the Library staff.

Circulation Services: One of the major services that the library offers is circulation of books and other reading material among the users. All IIT Jodhpur faculty, staff and students are entitled to borrow reading material from library.

Reference & Information Service: The library houses a number of reference books and also has access to information resources in electronic form. Library staffs are always available for guidance and help with the reference material, and also for answering the related queries.

Inter Library Loan & Document Delivery Service: Library arranges for borrowing books and scholarly articles that are not available in the library, from other libraries in India.

Course Reserves: The recommended textbooks by the faculties for different courses are available in the Course Reserves section. These books are for consultation in the library premises against the Identity Card. However, these are issued overnight during the examination period at IIT Jodhpur.

Current Awareness Service: Information about new arrivals of books and journals is made available on the library- website, catalogue and by way of an email newsletter sent periodically.

Book Bank Facility: The library has a special collection of textbooks for students belonging to SC/ST category, as per GoI rules. They are issued to the students, who can apply as per the announced schedule by the Book Bank student volunteers.

Online Catalogue: The library operations are completely computerized. Online catalogue can be accessed in both academic and residential campuses. It can be accessed at http://172.16.100.55:8081/newgelibctxt. The same software also functions as institutional repository.

Library Website:The library website (http://library.iitj.ac.in/) provides information about the services and facilities that can be availed and also acts as a gateway to a range of electronic resources including subscribed and open access.Indent forms for recommending books and journals for library are hosted on the library website.

Digital Library Facility: The library extension in room no. 1011 serves as the digital library with computer terminals facilitating access to various academic resources, viz., journals, databases etc. Some of the major electronic resources licensed by IIT Jodhpur Library are:

Journal resources:

- ACM Digital Library
- American Chemical Society
- American Institute of Physics
- American Physical Society
- Annual Reviews
- ASME Digital Library
- Elsevier's Science Direct
- IEL Online
- IMechE
- Institute of Physics
- Nature Publishing Group
- Optical Society of America
- Royal Society of Chemistry

- Proceedings of the National Academy of Sciences
- Project MUSE
- Science Online
- Society for Industrial & Applied Mathematics
- Springer Link
- Taylor & Francis
- Wiley Online Library
- Some miscellaneous titles from Cambridge University Press, Begell House, Rinton Press, SAE, University of Manchester Press etc.

Fulltext Databases:

- JStor
- EBSCO Academic Search
- EBSCO Econlit

Scientometric Databases:

- Mathscinet
- Scopus
- SciFinder Scholar

Library Networks: IIT Jodhpur Library is a member of professional library networks like Indian National Digital Library for Engineering, Science & Technology (INDEST), INFormation & LIBraries NETwork (INFLIBNET), and DEveloping Libraries NETwork (DELNET). As a member the library benefits in terms of subscriptions of journal resources and inter library loans and resource sharing.

Laboratories

Right from its inception, IIT Jodhpur has been striving to achieve an ideal synthesis of teaching and research. This spirit reflects most clearly in the variety and scope of the laboratories the institute has established so far. Now the institute has a number of state-of-the-art laboratories and research centers trying to elevate students from minimalist academic concerns to the inquisitive world of scientific arena. These labs and research centers help well-trained faculty members and students work for s better future by supplementing and improving existing technologies and bodies of knowledge, using competence, creativity, and imagination. To accomplish

such goals, IIT Jodhpur has already made collaborations with several leading academic and research centers across the world.

Advanced Manufacturing Laboratory

CAD Laboratory

The CAD Lab of the institute provides facilities for undergraduate students and faculty members to work with 2-D & 3-D design and analysis software for their academic and research work. The 3-D Modeling Software and FE Analysis softwares available in the CAD lab include:

- CATIA
- SolidWorks
- ANSYS

CAM Laboratory

In the CAM Lab undergraduate students learns to control machine tools and related machinery in the manufacturing of work pieces with help of computer programing and software. The CAD model of object is prepared in 3D modelling software and then its FE analysis is done with help of Analysis software and then manufactured using CNC programing and CNC machines. With help of CNC machines the object is manufactured with lesser time with higher dimensional accuracy with optimum uses of material, energy and cost. The CAM lab of the institute is equipped with following machines:

- EMCO Concept Mill 250
- EMCO Concept Mill 105
- EMCO Concept Turn 105

In addition, a rapid prototyping machine based on the Fused Deposition Modelling was acquired for the CAD/CAM lab from Stratasys Inc., USA. It works seamlessly with STL files generated from a number of CAD software programs. First year students of all engineering branches have been taught to create STL files of the product designed such that 3D model in ABS material can be printed for purposes of visualization and design communication. It is proposed to conduct workshops and training programs for external industry participants using this technology in the next academic year.

Central Workshop

Central workshop is a facility where the students are trained to convert raw material into finished products. Here, the students learn about various manufacturing processes such as metal cutting, metal forming, metal casting, and metal joining. The central workshop is equipped with different types of

welding machines which aid students in understanding the basic welding processes and in utilising the facilities for fabrication works for academic purposes.

The following are the machines and equipments available in central workshop:

1. Welding fume extraction down draft table
2. Multi process welding equipment
3. Portable single phase MIG/MAG
4. AC/DC welding equipment
5. MIG/MAG welding equipment
6. Treadle operated shearing Machine
7. Hand operated Folding Machine
8. Kaizen Muffle Furnace
9. Hand operated Jeeny or Burying Machine
10. Motorized Circle cutting Machine
11. Hand operated Circle cutting Machine
12. Hydraulic shearing Machine
13. Portable Heating Plant
14. Portable hardening plant
15. Forging Heating Plant
16. Aluminium Melting Plant
17. Fitting Table
18. Mould Making Facility
19. Portable Tool Grinder

Biosciences and Neuroscience laboratory

The Advanced Biosciences and Neuroscience laboratory is a part of the center of excellence in biologically inspired systems science (BISS). The goal of this laboratory is to provide cellular and molecular investigative tools for UG and PG teaching and research in neuroscience. We utilize cell culture studies along with molecular biology, biochemistry and microscopy approaches to elucidate the molecular mechanisms underlying molecular and cellular interactions underlying inflammation and repair. Inflammation is a key component of many diseases including traumatic brain injury, cancer, multiple sclerosis, stroke, asthma, Parkinson's disease and Alzheimer's disease. Inflammation is characterized by accumulation and proliferation of innate immune cells. This is followed by clearance of dead cells and cellular debris along with enhanced expression of molecular mediators called cytokines and chemokines, which cause migration and proliferation of immune cells and may even lead to cell death. Understanding the mechanisms by which inflammation occurs, and the molecular mediators involved in this process, is necessary for identification of potential therapeutic targets.

Biomolecular Information Processing laboratory

The laboratory is involved in the understanding of information processing by various kinds of biomolecules and related synthetic molecules. The process involves in using a single molecule first and then a group of molecule on a given interface. The interaction among the molecules in a given external stimuli will help us understanding the communication among them.

Chemical Biology Laboratory

The laboratory deploys cellular and molecular biology approaches to explore the pathogenesis of cancer and other neurodegenerative diseases. Given the interest in neuronal death, it is no wonder that this lab team is interested in E3 ubiquitin ligases essential for quality control events in neuronal survival. Protein ubiquitylation is highly versatile, ordered, the multistep post translation modification enzymatic process that regulates numerous aspects of cell physiology. This lab team has been studying the role of such E3 ligases to find out the role of quality control E3 ubiquitin ligases in maintenance of proteostasis and hence playing a role in cellular survival and death; such important biochemical findings may contribute to innovative therapeutic approaches for the diseases associated with misfolded proteins.

Research themes:

Organisms at the cellular level possess a well-established protein quality control mechanism which the lab team is trying to understand at present. The role of E3 ubiquitin ligases was reported in such mechanisms so far. Our laboratory is dedicated to a qualitative research in the field of protein quality control mechanisms. We have recently found that a HECT domain containing E3 ubiquitin ligase E6-AP helps in Amyotrophic Lateral Sclerosis diseases suppression through its association with the misfolded protein aggregates formed by SOD1 mutants. Such findings support that an E3 ligase can have a capability to clear the misfolded protein aggregation. However, while appreciating the incredible efficiency of cellular systems, we must recognize the crucial role of chaperones which are supposed to work preferentially compared to E3 ubiquitin ligases in order to refold the misfolded proteins, and hence conserving the energy utilized during the translation of those proteins. Various examples made us think that we could explore the role of both the chaperones and E3 ubiquitin ligases in the clearance of misfolded proteins. Therefore, now we are working not only with E3 ubiquitin ligases but also with the chaperones and even in their functional association to confer an efficient quality control mechanism to the cell.

Chemistry Laboratory

The core objective of the chemistry laboratory of IIT Jodhpur is to train students in scientific

methods that would solve real problems at the frontier of our understanding of the matter. This is a multi-use laboratory and provides a number of resources to assist undergraduate, graduate and PhD students in planning their professional careers after completing their academic program at IIT Jodhpur.

This laboratory maintains a broad spectrum of state-of-the-art instrumentation including basic laboratory set up (for organic, inorganic, organometallic and material synthesis), Nitrogen, Oxygen and LPG gas line, Inert atmosphere boxes, vacuum line work, fume hood pH, conductivity, BOD, COD, meters, Rotary evaporator, Vacuum pumps, centrifuges, High pressure reactor system, Chiller, microbalances, Orbital Shaker, GC, HPLC and Radleys ready reactor. In the academic year 2012-2013, the lab procured equipments such as Polarimeter, Melting point Instrument, Solar Simulator, Digital Titrator, Kugalrohr, Electrochemical work stations, and Battery analysers.

Control / DSP / Microprocessor Laboratory

The lab provides software and hardware infrastructure for carrying out experiments in the field of Control Systems, Microprocessor and DSP. Broadly, the lab includes the following experimental setup:

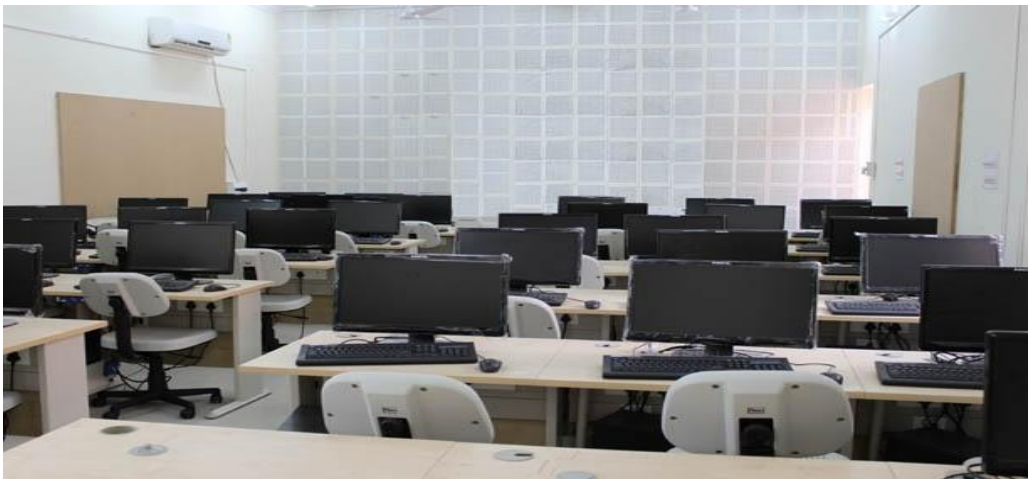
a. Control Systems

1. Ball & Beam System from Quanser
2. Magnetic Levitation System from Quanser
3. Inverted Pendulum System from Quanser
4. Softwares include Scilab / Matlab

b. DSP Lab Equipments

c. Microprocessor Labs

Digital Language Laboratory



The Digital Language Laboratory provides resources, facility, and support for foreign language instruction and learning to the entire student community of IIT Jodhpur. The lab is the multilingual computing and assessment center of the institute. The lab team explores and implements methods through which multimedia technology renders learning a foreign language a more authentic experience. Here, for language learning purposes one could seek recourse to most advanced technologies including the Internet and interactive video, audiovisual techniques, multi-modal iconic approach, and speech recognition. Some other exercises include listening and comprehension, grammar-based exercises, placement solutions, and mastery tests. The main features of this state-of-the-art facility include top-rated Smart Class Symposium LL from Robotel and New Dynamic English Learning Program from Dyned

International. All the facilities at the Digital Language Laboratory are proficiency-oriented and standard-based, and nurture the students' enthusiasm for gaining global exposure and proficiency in a foreign language.

Electronic Circuit Laboratory

In this laboratory the students make and test their analog and digital circuits by using all kinds of circuit components like diode, transistor, opamps, and clocks. The lab has following equipments:

1. Arbitrary Function Generator from Agilent
2. Digital Oscilloscope from Agilent
3. Programmable Power Supply from Scientific
4. 6 1/2 BIT DMM from Agilent

Electro Mechanical Energy Conversion Laboratory

In order to familiarize students to Electrical Machines properties & characteristics, IIT Jodhpur has established "Electro Mechanical Energy Conversion Laboratory" and

has continually been developing the potential of its lab facility. In this lab, state-of-the-art "Electrical Engineering" facilitates the students to empower their potentials by familiarizing themselves with the fundamental of electro-mechanical energy conversion process, including several practical & industrial applications of machines in true applicable environment. This lab occupies conventional as well as modern equipments to fulfil the basic and modern technological requirements with continual developing efforts.

Renewable Energy Laboratory

To resolve most daunting challenge of this world—energy needs—and also our nation's heavy reliance on fossil fuels, Renewable Energy Laboratory (REL) promotes rigorous and objective empirical research at IIT Jodhpur on issues related to energy and environment. REL focuses on designing, testing, and disseminating renewable and efficient energy system. The mission of REL is to help these technologies to realize their full potential to contribute to environmentally sustainable development in industrial and developing countries. In the renewable energy field, expert faculty and students at this Laboratory are currently striving to create an innovative system to efficiently harness energy from sunlight and wind power. Recently, a work on solar and wind system for household development has been planned and our research effort at REL draws on ongoing work in variety of fields, including energy engineering, and environmental risk analysis. REL has computer interfaced systems and approximately 30 students can work at a time. Students are the greatest resource of REL and IIT Jodhpur has made substantial commitment to the area of renewable energy and been providing all required resources to execute a viable plan and innovative research at REL. One aspect of the evolution of REL is the development of collaborative partnership with other academic and industrial groups. In the near future, it will be a hub for

training and public-private sector collaboration. Recently, the lab has started a consultancy project, with Panasonic R & D India Pvt Ltd, on the prototyping of microbial fuel cells. In addition, the lab has started work on data collection, interpretation, and analysis of PV power plants less than 5 MW in Rajasthan and Gujarat.

Equipment

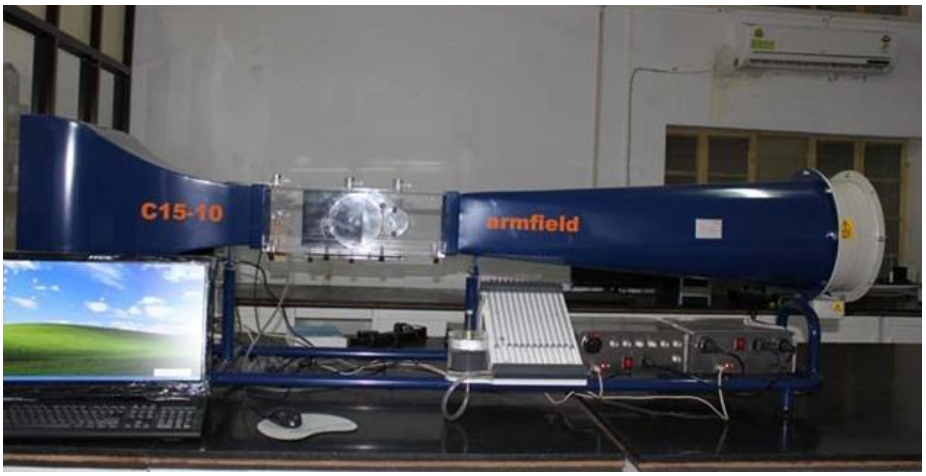
1. Wind power of 2KW Charge controller ~12V, Synchronous generator with permanent magnets ~12V, Lamp board ~12V, Off grid inverter etc .
2. PEM Fuel cell Fuel cell with DC converter, Electronic load, Metal hydride storage cell, Electrolyser, 200W/20V/10A.
3. Advanced Photovoltaics Solar module simulation model 23V/2A, Solar module with solar altitude emulator, Solar charge controller 12/24V, 6A, Solar accumulator 12V, 7Ah, Off grid inverter 230V, 275VA etc.
4. Combined RF/DC Sputtering Unit for Coatings Applications

Fluid Mechanics and Heat Transfer Laboratory

At Fluid Mechanics Laboratory students learn:

- Analyses and evaluation of experimental data
- Comparison between theoretical models and experimental data
- How to design a fluid mechanical and heat transfer system e.g. a piping system considering various technical aspects, heat exchanger, thermal energy storage, receiver, wind catcher, volumetric air receiver.

In addition to the above, this laboratory aims at generating innovative ideas in students by promoting the design of experiments and small scale projects. At present in the fluid mechanics laboratory are conducted experiments on losses in pipes (smooth/rough) and fittings (e.g. valves, bends), comparison between different flow meters, particle image velocimetry technique, Hot-wire anemometer, labscale sub-sonic wind tunnel for- pressure distribution around a cylinder/air-foil, lift and drag balance, boundary layer development, weather monitoring. Furthermore the lab provides training on standard software, such as, CFAST for fire simulation.



Currently the Heat Transfer Laboratory is equipped with the demonstration of various thermometry techniques, heat exchange system, ventilation system, Natural and forced convection system, heat conduction unit for different materials, lab and industrial-scale solar water heater system, and thermal radiation unit. All these equipment are installed with respective software.

For testing, calibration and research purpose in these laboratories, various equipments, such as, Laser Doppler Velocimeter with Particle Analyzer, pressure and temperature calibration, blower with variable flow, pressure transducers, differential pressure transducers, turbine test rig, turbo-machine test rig, IC engine test rig etc. are being procured.

Moreover, multi-purpose test set up is being indigenously designed and the components / sub-systems involved are being fabricated locally. This system aims at investigation and evaluation of solar thermal sub-systems such as volumetric air receiver, thermal energy storage, air-water heat exchange systems and their simultaneous operation. Devices such as earth air heat exchange system, wind catcher, and air-cooled heat exchange systems are being fabricated and tested for certain applications.

Material Testing and Solid Mechanics

The material testing lab of the institute provides facilities to test samples of different types of materials to find out their mechanical properties like modulus of elasticity, tensile and compressive strength, stress strain curve, bending properties, hardness etc. The lab is equipped with following test equipments:

1. Universal testing Machine 5-50 kN
2. Rockwell Tester
3. Brinell Tester
4. Vickers Tester
5. Poldi Hardness Tester
6. Portable hardness tester
7. Material Testing and Solid Mechanics

Materials Analysis Laboratory

The research focuses on the development of novel materials for different applications including materials for energy generation and storage. The current work includes the development of solution processable CIGS compound semiconductor materials for solar cell applications and transition metal oxide based materials for lithium ion batteries and supercapacitor applications. The laboratory is equipped with synthesis of bulk and thin films techniques such as sputtering, sol-gel process assembly etc and numerous characterization techniques such as X-ray diffraction, Scanning electron microscope, Optical spectroscopic techniques, LCR meter, ferroic measurement system for bulk samples etc.

In addition, the group is also focusing on the development of multifunctional materials for different applications such as solar selective coatings, ferroic materials for high frequency absorbing system, and magnetic particles for different applications."

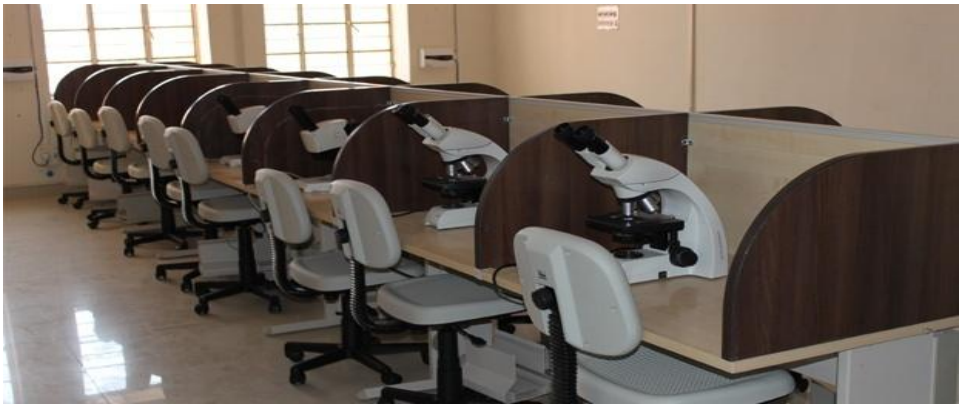
The laboratory is equipped with state-of-the-art facilities to carry out thermal analysis, electrochemical analysis, surface morphology studies, separation techniques for chemicals, electrical conductivity measurement devices, glove box etc.

Microscopy Laboratory

The Microscopy Laboratory at IIT Jodhpur is located in Academic block 1, Room Number 1107. This burgeoning laboratory is committed to procuring all specific Equipment and is about to gain the level of state-of-the-art laboratories at IIT Jodhpur. Experienced faculty nurtures students' enthusiasm about the morphological analysis of biological samples and also assists them to operate scientific instruments. Currently, this laboratory houses different microscopes and a number of common pieces of sample preparation equipment.

Multimedia Laboratory

The Media Laboratory provides facilities to carry out work related to E-learning, image processing, and computer vision. The thrust areas of research in this lab are: Semantic analysis of video/image content, video surveillance, human motion analysis, document image analysis, content based image retrieval etc. E-learning related activities include video recording, audio-video digitization, video editing, etc. In the academic year 2011-2012, a research on Indian sign language recognition using Kinect has been initiated.



Equipments:

Scanners: Book Drive Mini, UMAX Powerlook. Cameras: Sony 177PD, Sony Camcorder, Cannon 500D VCR: Sony DSR 45AP Tripods: Manfrotto, iMac.

Networking Technologies Laboratory

Networking Technologies Laboratory has been started functioning in the Academic Year 2011-2012. It aims at enabling undergraduate and graduate students, who pursue their interest in the area of computer networks, to understand the concepts of computer networks and work with contemporary networking equipment in a realistic setting. In addition, the lab aims at providing necessary infrastructure to carry out research activities on advanced topics, such as wireless mesh networks, sensor networks, communication on power lines, from computer networks.

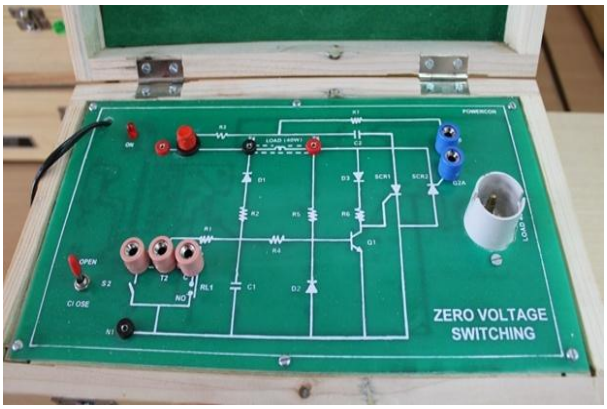
Proposed Activities:

- Prototyping of networking hardware (Example, Ethernet switch, IPV4 router etc) using NetFPGA.
- Developing packet processors using Click router modular software framework.
- Establishing infrastructure for the mini-Internet, single-hop wireless networks, multi-hop wireless mesh and sensor networks, power line communication networks, home phone line networks.
- Studies related to the performance analysis of various protocols over on different network configurations.
- Development of novel routing algorithms, transport layer mechanisms, and services for next generation networks.
- Setting up planet-lab infrastructure (which will essentially become part of the global distributed computing platform created over the Internet by connecting over 500+ sites). This allows the students and researchers not only to understand the traffic patterns on the Internet but also to develop new technologies/applications on the Internet for distributed storage, networking mapping, peer-to-peer systems, content distribution service, and cloud computing.

Physics Laboratory

The mission of the Physics laboratory at IIT Jodhpur is to provide students with experiential knowledge in basic physics. This laboratory has state-of-the-art facilities including specific equipments and is currently offering different experiments in Mechanics, Waves, Electricity, Magnetism, and Optics. Now the lab has facilities for experimenting with Speed of Light, Zeeman Effect, and Michelson Interferometer.

Power Electronics Laboratory



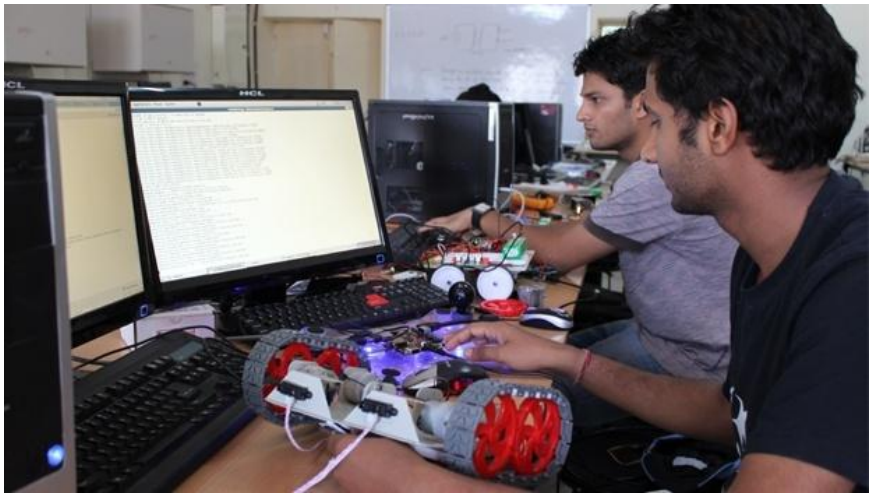
The power electronics laboratory is used for undergraduate studies and research in the area of power electronics based power conversion systems, control systems and drives. The laboratory facilitates for faculty and students to conduct research in the areas power converters and AC/DC micro-grid. The laboratory is equipped with state-of-art test and measurement instruments, converters, power supplies and programming boards.

Major Equipments:

1. High Precision power Analyzer –YOKOGAWA WT3000.
2. DSO- Tektronix 200MHz (DPO 2024) and 1GHz (DPO 4104B).
3. Function Generator-Tektronix AFG 3021B.
4. Power Supply: 0-30V, 1A; 0-32V, 3A; 0-32, 10A.
5. Three phase inverter drive.
6. Three phase inverter stacks.
7. DC-DC converters.
8. Differential currents Probes.
9. Current clamps.
10. Isolation Transformers.
11. FPGA training kits and programming boards.

Robotics Laboratory

IIT Jodhpur has an advanced robotics laboratory for PG/UG education and research.



The infrastructure includes the following:

1. Vicon Motion Tracking System
2. Mobile Manipulator comprising of Barret WAM ARM mounted on a PowerBot Mobile robot platform
3. Pioneer P3-DX mobile robots - 10 units
4. Turtlebot
5. Wheel Chair

6. Force Plate
7. Infrastructure for Mobile Robotics - Navigation, Path-planning, SLAM
8. Dynamic and Kinematic Control problem, Redundancy Resolution, Inverse Kinematics of Manipulators and Mobile Manipulators, Visual Servoing
9. GAIT Analysis and Robot Assisted Rehabilitation

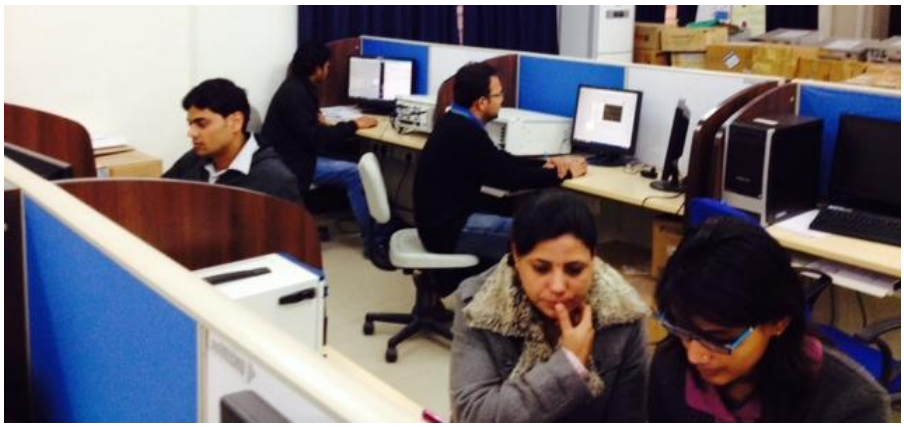
Solar Radiation Laboratory

The Ministry of New and Renewable Energy (MNRE) has selected the IIT Jodhpur campus site as one of their solar radiation centers. Solar radiation measurement (Global and Direct), Humidity, Ambient temperature, Rain gauge and wind speed measurement are carried out at this center and the data is transmitted via a satellite link to the MNRE nodal center C-WET in Chennai. The instruments in this laboratory are powered by a couple of solar panels. The data collected from this center enables the solar resource assessment required for the setting up of solar thermal and solar photovoltaic power plants as outlined in the Jawaharlal Nehru National Solar Mission (JNNSM).

Instrumentation and Communication Laboratory

The mission of Instrumentation and Communication Laboratory is to provide platform for UG and PG students on research and hands-on learning in Measurement and Automation Technology. The state-of-the-art facilities at

this laboratory offer innovative research opportunities in the astronomical space of communication and real time measurement technology. The experienced Lab team nurtures students' talent in research and offers an opportunity for developing sophisticated measurement, test, control systems, data analysis system and next generation communication technologies.



Students also develop theoretical and practical competence in (i) building baseband communication circuits, (ii) the application of NI LabVIEW graphical programming software, (iii) the PXI based NI RF/Wireless measurement stand, (iv) evaluating NI WSNs and LabVIEW software, adjusting a software-defined radio system, measuring the parameters of studied antennas and (v) the operation of analog modulation schemes.

NI-Lab contains software and hardware subsystems which enable rapid prototyping and development of embedded systems for various applications. Currently, this lab constitutes the following setups:

- NI ELVIS based Communication Systems and Theory Teaching Stand
- Large MIMO Stand for Spectral, Channel Efficiency Studies and New Standard Development
- Protocols Stand for WLAN, WiMAX, GPS, RFID, Zigbee, GSM, CDMA, WCDMA, Bluetooth
- FPGA-enabled Software Defined Radio Stand for Custom Communication Scheme Development and Research
- Basic Analog and Digital Communication Techniques Teaching Stand
- Wireless Sensor Networks Stand
- Signal Intelligence and Wireless Spectral Monitoring Stand
- Wireless Prototype Characterization and Testing Stand
- FPGA based protocol development for base-band studies and signal processing
- VNA based Antenna Characterization Stand

- Fiber Optic Communication Stands
- Network Based Manufacturing
- USRP (Universal Software Radio Peripheral) based wireless communication system for physical layer design, record and playback, signal intelligence, algorithm validation and more.
- Network Communication and Manufacturing Control Stand

After three years of its formation, this lab has contributed immensely to the learning and research activities at IIT Jodhpur. Communications and Networking Lab, Intelligent Instrumentation, System Analysis Techniques and Bio-Sensors courses are being offered through this lab for both graduate and undergraduate students. The lab has provided the right hardware and software tools for many industrial consultancy projects, including the development of DRM/DRM+ IP for digital radio standards, Link budget design for Marine environment, DRFM based Radar echo simulator and Blind Signal Demodulator. Other projects being done in the lab are development of affordable wireless video transmission systems, cognitive radio and Zigbee protocol development.

High Temperature Solar Thermal Laboratory

Six laboratories are being set-up under the MNRE funded project entitled as "Establishment of Center of Excellence in Solar Thermal Research and Education at IIT Jodhpur". High Temperature Solar Thermal Laboratory is one of these specialized laboratories. The aim of this laboratory:

- Fundamental aspects of fluid flow and heat transfer related problems, like, dust deposition
- Design and analysis of sub-systems for concentrated solar thermal systems

Some of the sub-systems being designed and analyzed in this laboratory are:

- Open Volumetric Air Receiver for process heat applications
- Compact heat exchanger
- Solar Convective Furnace

This laboratory includes test facility, such as, Solar Air Tower Simulator (SATS) facility, advanced research grade equipment like Laser Doppler Velocimetry. SATS facility includes, open volumetric air receiver, thermal

energy storage, air-water heat exchanger and is being extended with solar convective furnace.

Health Centre

IIT Jodhpur provides round the clock health care facilities to students and institute staff members at the residential campus. The Health Centre has now three doctors and four supporting staff members. The institute also has tie-ups with some hospitals in the city to cater to the medical needs of the students and staff. The Health Centre at the residential area has all the necessary infrastructure, facilities, and equipment needed for basic health care. Essential medicines are stocked and provided to patients undergoing treatment.

Health Centre coordinates and supervises the treatment of students, employees, and their dependents during hospitalization in other hospitals which are accredited to the institute to provide in-patient care. Health Centre arranges for ambulance on call during medical emergencies.

Health Centre extends its health care services on request to visitors of the institute during their stay in transit hostels in the residential area. Under emergency circumstances medical services are also extended to the residents at the campus who do not belong to IIT community. Patient records, details of medicine procurement/disbursement, assets, equipment of Health Centre etc. are all computerized. The institute is looking forward to procure facilities for some common emergency health situations such as ECG machine, ambulance, etc.

Sports Facilities

The institute provides facilities for sports and games at four places: hostel premises, academic campus, Vidyashram playground, and JNVU new campus. Also, the institute has arranged conveyance for those students who wish to go to Vidyasham playground and JNVU new campus. Further, a gymnasium at the residential area functions for the students.

SC/ST and OBC Cell

IIT Jodhpur has created the SC/ST and OBC Cell for ensuring the proper utilization and adaptation of reservation policies and guidelines issued by the Government of India. The Cell has also been entrusted with work related to grievances received from SC/ST and OBC employees and students. The Cell also needs to communicate relevant information to the Ministry of Human

Research and Development and to communicate to the Institute Government of India's decisions related to admission, recruitment, promotion and training of SC/ST and OBC students and employees. IIT Jodhpur has been adopted the reservation policy while selecting the students for MCM scholarship. In addition, a substantial number of SC students whose total family income is up to Rs. 4.50 lakhs per annum are getting benefited with Central Sector Scholarship of Top Class Education created by the Ministry of Social Justice and Empowerment with the initiation taken by the Institute. In conclusion, here at IIT Jodhpur, a through utilization and effective adaptation of reservation policies made by Government of India towards students, staff and faculty members has been carefully ensured at every possible movement.

Hindi Cell

The Hindi cell of IIT Jodhpur aims to promote the use of Hindi as a medium of official communications and personal relations. The goal of the cell is to reach out to a wider audience and to motivate the IIT Jodhpur community to develop the basic language skill sets in Hindi. It also encourages and assists the students to conduct various competitions and activities related to Hindi language and literature.

Office Automation

The Office Automation Cell of the institute takes care of the IIT website, CoE websites, web pages of faculty members, and so on. The mission of the Office Automation division is to render all office procedures automated so their timely completion could be ensured and account keeping would become simpler and easier. The institute has already automated procedures for booking transit hostel; faculty, staff, and students leave; vehicle booking for official purposes; and bona fide certificate for students.

Scholalry Activities

- **Invited Lectures**
- **Publications in Academic Journals**
- **Conference Presentations and Publications**
- **Faculty Members& Areas of Research Interest**

Invited Lectures

1. **Shree Prakash Tiwari**: Keynote Speech: "Introduction to Microelectronics & VLSI", in Short Term Training Programme on "Advance Trends in VLSI", June 11 - 16, 2012, JIET Jodhpur, India.
2. **Kshema Prakash**: "Changing Roles and Responsibilities of Library & Information Professionals in the Knowledge Society", in UGC Sponsored Refresher Course in Library & Information Science, December 06-08, 2012, Jai Narayan Vyas University, Jodhpur, India.
3. **Kshema Prakash**: "Library 2.0" Web 2.0 Applications in Libraries", in UGC Sponsored Refresher Course in Library & Information Science, December 06-08, 2012, Jai Narayan Vyas University, Jodhpur, India.

Publications in Academic Journals

Centre of Excellence on Biologically-inspired Systems Science

[1] N. Garg, N. Bieler, T. Kenzom, **M. Chhabra,** M. Ansorge-Schumacher, and S. Mishra, "Cloning, sequence analysis, expression of Cyathus bulleri laccase in Pichia pastoris and characterization of recombinant laccase.," *BMC Biotechnol.*, vol. 12, no. 1, p. 75, Jan. 2012.

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[3] D. Chhangani, N. Jana, and **A. Mishra**, "Misfolded Proteins Recognition Strategies of E3 Ubiquitin Ligases and Neurodegenerative Diseases," *Mol. Neurobiol.*, vol. 47, no. 1, pp. 302–312, 2013.

[4] D. Chhangani, A. Joshi, and **A. Mishra**, "E3 Ubiquitin Ligases in Protein Quality Control Mechanism," *Mol. Neurobiol.*, vol. 45, no. 3, pp. 571–585, 2012.

[5] **M. Sinha**, B. Mukhopadhyay, and A. Sedrakian, "Hypernuclear matter in strong magnetic field," *Nucl. Phys. A*, vol. 898, pp. 43–58, Jan. 2013.

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Centre of Excellence on Energy

[9] F. Roelofs, V. R. Gopala, **L. Chandra**, M. Viellieber, and a. Class, "Simulating fuel assemblies with low resolution CFD approaches," *Nucl. Eng. Des.*, vol. 250, pp. 548–559, Sep. 2012.

[10] Kamal Sharma, Harshit Kumar Khandelwal, Vivek Bhasin, **R. Chhibber**, "Application of Ball Indentation Technique for Mechanical Properties Estimation of Bi-Metallic Weld", *Advanced Materials Research*, 585, 342-346, 2012.

[11] **R. Chhibber**, H. Singh, N. Arora, and B. K. Dutta, "Micromechanical modelling of reactor pressure vessel steel," *Mater. Des.*, vol. 36, pp. 258–274, Apr. 2012.

[12] **R. Chhibber**, Yogesh Kumar Singla, Bijan Kumar Dutta, "Optimization of Process Parameters for Friction Welding of Bimetallic Welds", *Advanced Materials Research*, 585, 440-444, 2012.

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[14] Sandeep Jindal, **R. Chhibber**, N.P. Mehta, "Effect of Flux Constituents and Basicity Index on Mechanical Properties and Microstructural Evolution of Submerged Arc Welded High Strength Low Alloy Steel", *Materials Science Forum*, 738-739, 242-246, 2013.

[15] B. Tiwari, **A. Dixit**, R. Naik, G. Lawes, and M. S. Ramachandra Rao, "Dielectric and optical phonon anomalies near antiferromagnetic ordering in LaCrO3: A possible near room temperature magnetodielectric system," *Appl. Phys. Lett.*, vol. 103, no. 15, p. 152906, 2013.

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[24] **A. K. Plapally**, Ankur Hasija, "Water Use and Related Costs at Households in Western and Northern Parts of India," *J. Waste Water Treat. Anal.*, vol. 04, no. 03, 2013.

[25] **B. Pratiher**, "Tuning the Nonlinear Behaviour of Resonant MEMS Sensors Actuated Electrically," *Procedia Eng.*, vol. 47, pp. 9–12, Jan. 2012.

[26] S. K. Dwivedy and **B. Pratiher**, "Reply to the 'Comments on parametric instability of a cantilever beam with magnetic field and periodic axial load,'" *J. Sound Vib.*, vol. 331, no. 6, pp. 1465–1466, Mar. 2012.

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Centre of Excellence on Information & Communication Technologies

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[46] S. Omkar, R. Srikanth, and **S. Banerjee**, "Dissipative and non-dissipative single-qubit channels: dynamics and geometry," *Quantum Inf. Process.*, vol. 12, no. 12, pp. 3725–3744, 2013.

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Conference Presentations and Publications

1. Rakesh K. Sarma, Piyush Sharma, Digpal Kumar, **Laltu Chandra**, **P. Pradeep Kumar** and **Rajiv Shekhar**, "*On the applications of heat and fluid flow for designing solar thermal sub-systems*", Proceedings of International Congress on Renewable Energy 2012, PDPU, Gandhinagar.

2. Agarwal, R. V. Maitri, P. Garg, **Laltu Chandra**, "*Design and Analyses of Earth-air Heat Exchange Systems for Space Cooling*", Proceedings of IEEE Third International Conference Sustainable Energy Technologies (10.1109/ICSET.2012.6357430, 385 - 390 , 2012, IEEE) 2012, Kathmandu, Nepal .

3. **Ambesh Dixit**, Brajesh Tiwari, M. S. Ramachandran Rao, "*Non-collinear Weak Ferromagnetism in LaCrO3: a Theoretical Study*", Proceedings of the DAE-BRNS 4th Interdisciplinary Symposium on Materials Chemistry, 11-15 Dec, 2012, BARC Mumbai.

4. E. Abdelhamid, R. Mukherjee, D. Mishra, **Ambesh Dixit**, B. Nadgorny, G. Lawes, "*UV induced stable conductivity in Indium Oxide films*", APS March Meeting, V. 58, No. 1, 18-22 Mar, 2013, Baltimore, USA.

5. Ching Eng Png ; **Vivek Dixit** ; Soon Thor Lim and Er-Ping Li, "*Accurate high-speed eye diagram simulation of silicon-based modulators* ", Proceedings of the SPIE 8629, Silicon Photonics VIII, 86290S (March 14, 2013);

6. Kensuke Ogawa ; Kazuhiro Goi ; Hiroyuki Kusaka ; Yoshihiro Terada ; Tsung-Yang Liow, **Vivek Dixit** et al., "*Low-loss high-speed silicon Mach-Zehnder modulator for optical-fiber telecommunications* ", Proceedings of the SPIE 8629, Silicon Photonics VIII, 86290U (March 14, 2013);

7. Soon Thor Lim ; Maoqing Xin ; Ching Eng Png ; **Vivek Dixit** and Aaron J. Danner, "*Hybrid silicon organic high speed electro-optic phase shifter* ", Proceedings of the SPIE8619, Physics and Simulation of Optoelectronic Devices XXI, 86191K (March 14, 2013)

8. Udit Roy, **Gaurav Harit**, "*Text Detection on Camera Acquired Document Images using Supervised Classification of Connected Components in Wavelet Domain*", Proceedings of the International Conference on Pattern Recognition (ICPR), 11-15 Nov, 2012, Tsukuba Science City, Japan.

9. **Gaurav Harit**, Anukriti Bansal, "*Table Detection in Document Images using Header and Trailer Patterns*", Proceedings of the Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP), 16-19 Dec, 2012, Mumbai.

10. **K. R. Hiremath**, L. Zschiedrich, S. Burger, and F. Schmidt, "*Nonlocal hydrodynamic Drude resonances of nano-plasmonic scatterers: Modeling and simulations*", Proceedings of the ECIO, 18-20 April, 2012, Sitges, Spain.

11. **Sushmita Jha**, "*Debris clearance in the brain: Implications for inflammation and repair*", Proceedings of the Young Investigator's Meeting (YIM) Jodhpur, India bioscience.org, 09-13 Feb, 2013.

12. Pura Ram, **A.K. Plapally, George, K.J.**"*Assessment of Household Water Use Based on Personal Values, Social Influence and Daily Routines of People at Jodhpur near Thar Desert in India*", Proceedings of Watech Asia, 1, 11-18, 13-14 Feb, 2013, Mumbai.

13. **Barun Pratiher**, "*Tuning the Nonlinear Behaviour of Resonant MEMS Sensors Actuated Electrically*", Proceedings of EUROSENSORS , Wroclaw University of Technology , 09-12 Sep, 2012, Krakow, Poland.

14. **B. Ravindra**, "*Amorphous silicon based roof top and building integrated photovoltaic plants*", Proceedings of National conference on advances in nanomaterials and nanotechnology for renewable energy conversion and storage devices, ANNRECSO-12 held at Kukas, Jaipur, 2012.

15. Ashutosh Singla, Jaya Shukla, **Anil Kumar Tiwari**, Sunil Prasad Jaiswal, Vinit Jakhetiya, "*Adaptive Predictor Structures for Lossless Compression of Videos*", 22nd IEEE Data Compression Conference, 410, 10-12 April, 2012, Salt Lake City, USA.

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23. Juhi Bhadviya, Sunil Prasad Jaiswal, Vinit Jakhetiya, **Anil Kumar Tiwari**, "*Exploitation of Temporal Redundancy for Lossless Video Coding*", Proceedings of the biennial IEEE APCCAS 2012, 663-666, 02-05 Dec, 2012, Taiwan.

24. Ayush Kumar, Nimisha Agarwal, Juhi Bhadviya, **Anil Kumar Tiwari**, "*An efficient 2-D jacobian iteration modeling for image interpolation*", Proceedings of the 19th IEEE International Conference on Electronics, Circuits and Systems, 977-980, 09-12 Dec, 2012, Seville, Spain.

Faculty Members and Specializations

Prem Kumar Kalra	Professor & Director	University of Manitoba, Canada	Electrical Engineering: Power Systems, Expert Systems, HVDC Transmission, Deregulated Power System, Educational Paradigms, Data Mining, Fuzzy Logic System, Neural Networks, Computational Neuroscience Image Processing Independent Component Analysis & Blind Source Separation, KARMAA (Knowledge Acquisition, Retention, Management, Assimilation & Application)
Abhishek Mishra	Assistant Professor	IIT BHU	Computer Science and Engineering: Algorithms & Complexity
Akhilesh Mohan	Assistant Professor	IIT Kanpur	Electrical Engineering: RF and Microwave Communication, Microwave Filters Metamaterials, RF-MEMS for filter applications
Ambesh Dixit	Assistant Professor	Wayne State University	Physics: Semiconductors, multifunctional ferroics & materials for energy-fabrication & characterization, Photovoltaic materials & devices ab initio DFT study and device simulations
Amit Mishra	Assistant Professor	National Brain Research Centre	Cellular and Molecular Neuroscience, Cell Cycle Regulation and Cancer

Anand Krishnan Plappally	Assistant Professor	Ohio State University	Mechanical Engineering: Energy Water Nexus; Water/Waste Water Treatment, Hydrology, Mechanics of Materials, Probabil. Methods in Engg., Agri. Water Mgmt.
Ananya Debnath	Assistant Professor	Indian Institute of Science, Bangalore	Multi-scale Modeling, Protein-Membrane Biophysics, Dynamics and Thermodynamics of Interfacial Water, Polymer Dynamics of Activated Processes and Barrierless Reactions, Theory of Path Integrals
Ankita Sharma	Assistant Professor	BHU	Psychology:Gerontology, Clinical and Positive Psychology
Anil Kumar Tiwari	Assistant Professor	IIT Kharagpur	Electrical Engineering: Image Processing,Video Processing, and Signal Processing application in Bio-Medical
Ansu Louis	Assistant Professor	IIT Kanpur	English: American Literature, Literary and Critical Theory, Postmodern Fiction, and English Language and Communication
Arnab Datta	Assistant Professor	IIT Bombay	Electrical Engineering:Electrical characterization, T-CAD, and Monte-Carlo modeling of semiconductor devices, Advanced MOSFET characterization issues, Numerical modeling for MEMS reliability projection, Integrated optical devices modeling, Fabrication of MOS devices
Ashutosh Kumar Alok	Assistant Professor	IIT Bombay	Physics: Particle Physics and Cosmology

Atul Dubey	Assistant Professor	Rutgers University, USA	Mechanical Engineering: Granular Dynamics; Solar Thermal Energy utilization ; Computational Engineering ; BioEngineering
Atul Kumar	Assistant Professor	IIT Madras	Chemistry: Quantum Information Processing
Ravindra Brammajyosula	Associate Professor	IIT Kanpur	Mechanical Engineering: Mechanics, Mechatronics and Solar energy
Barun Pratiher	Assistant Professor	IIT Guwahati	Mechanical Engineering: Dynamic Model & Simulation, Nonlinear Dynamics,Stability Analysis,Perturbation Techniques,Flexible Robots, Fluid-Structures Interaction in Flexible Pipes or carbon nanotube, Modeling and Dynamics Response MEMS Devices
Bibhas Adhikari	Assistant Professor	IIT Guwahati	Mathematics & Statistics: Linear and Non-linear Algebraic Systems, Optimization Techniques, Network Systems
Deepakkumar M. Fulwani	Assistant Professor	IIT Bombay	Electrical Engineering: Control and state estimation of uncertain systems, Power system, Control issues in wind energy conversion system
Gaurav Harit	Assistant Professor	IIT Delhi	Computer Science & Engineering:Image and Video Analysis
Gourishankar S Hiremath	Assistant Professor	University of Hyderabad	Economics:Financial Economics,Financial Markets, International Finance, Economics of Energy, Long Memory, Cooperatives,

Hari Narayanan, V.	Assistant Professor	IIT Kanpur	Philosophy: Cognitive Studies, Evolutionary Theory, Analytic Philosophy and Mindfullness
George Kodimattam Joseph	Assistant Professor	IIT Kanpur	Philosophy:Applied Ethics, Ethics of Technology, Bioethics
Kamal Kumar Dua	Visiting Faculty		Zoology(Environmental Pollution), Bioethics
Kirankumar Rajshekhar Hiremath	Assistant Professor	University of Twente (The Netherlands)	Mathematics & Statistics: Theoretical, mathematical and computational aspects of wave-matter interactions
Laltu Chandra	Assistant Professor	Forschungszentrum Karlsruhe GmbH & University of Karlsruhe, Germany	Mechanical Engineering : Solar thermal system, Thermal hydraulics, Turbulence simulation(DNS/LES/HYBRID/RANS) & model development, Computational Fluid Dynamics, Heat Exchager design
Mainak Mazumdar	Assistant Professor	Instiute for Social and Economic Change (ISEC)	Economics: Intellectual Property Right(IPR) and Pharmaceutical Industry, Productivity and Efficiency Analysis, Growth and Regional Development, Inequality Poverty and Social mobility.
Mahesh Kumar	Assistant Professor	IISc Bangalore	Physics:Group III-V quantum structures by MBE,Growth of thin films and nanostructures, Group III-nitride alloys for LEDs, HEMTs and photovoltaic applications, Inorganic-Inorganic hybrid structures with special attention to band gap engineering, Si and wide band gap semiconductors for MEMS, Micro and Nano device fabrications

Manikandan Paranjothy	Assistant Professor	IIT Kanpur	Chemistry: Theoretical and Computational Chemistry, Chemical Reaction Dynamics
Manish Dev Shrimali	Assistant Professor	JNU	Physics: Nonlinear Dynamics and Chaos, Complex Systems, Computational Neuroscience
Meenu Chhabra	Assistant Professor	IIT Delhi	Biological Science & Bio-Engineering :Renewable Bioenergy Bioremediation
Monika Sinha	Assistant Professor	Jadavpur University	Physics: Astrophysics, Astroparticle physics
Pradeep Kumar, P.	Assistant Professor	IIT Bombay	Mechanical Engineering: Thermal hydraulics, Solar thermal system, Microfluidics
Puneet Sharma	Assistant Professor	IIT Delhi	Mathematics & Statistics: Topological Dynamics, Low Dimensional Chaos
Pushkar Shripad Joglekar	Assistant Professor	Institute of Mathematical Sciences, Chennai	Computer Science & Engineering: Computational Complexity, Algorithms.
Prodyut Ranjan Chakraborty	Visiting Faculty	IISc Bangalore	Mechanical Engineering:Heat and mass transfer, Latent heat based thermal energy storage for high temperature applications, Active and passive solar cooling, Solidification and melting of alloys, Thermodynamics, Numerical heat transfer
Rahul Chhibber	Assistant Professor	IIT Roorkee	Mechanical Engineering: Welding and Joining, Advance Manufacturing Processes, Damage Mechanics, Biomaterials, Materials Processing
Rahul Singhal	Visiting Assistant Professor	Delhi University	Energy, Biosensors

Rajiv Shekhar	Visiting Faculty	University of California	Energy
Rakesh Kumar Sharma	Assistant Professor	Indian Institute of Science	Chemistry: Water splitting catalysis, solar hydrogen production Macromolecule based molecular sensors, Heterogeneous catalysis for small molecule activation, Green Chemistry Catalysis for stereocontrol Plastic electronics, Feedstock Chemistry, Catalysis for energy solutions, coordination Chemistry based of d- and f- block element. Water chemistry.
Ravindra Arora	Professor	TU Dresden, Germany	Electrical Engineering: Electrical Power System, High Voltage Insulation Engineering, Lightning and Ball Lightning Phenomena
Rakesh Saxena	Visiting Faculty		Mechanical Engineering
Samanvita Pal	Assistant Professor	IIT Madras	Chemistry: Solution and solid state NMR and NQR spectroscopy.
Sandeep Kumar Yadav	Assistant Professor	IIT Kanpur	Electrical Engineering: Signal Processing, Condition Monitoring, Image Processing, Data Compression, Blind Source Separation, Artificial Neural Network.
Satyabrata Adhikari	Assistant Professor	Bengal Engineering and Science University, Shibpur	Mathematics & Statistics: Quantum Information
Satyajit Sahu	Assistant Professor	Jadavpur University	Physics: Information Processing in Biological Systems

Shaligram Tiwari	Visiting Faculty	IIT Kanpur	Mechanical Engineering: Heat and Mass Transfer, Computational Fluid Dynamics, Flow Transition and Instability, Refrigeration and Air Conditioning
Harinipriya Seshadri	Assistant Professor	IIT Madras	Chemistry: Lithium ion batteries, fuel cells, electro-deposition, Thermal storage systems, Monte Carlo simulations, Materials synthesis and characterisation
Shanmuganathan Raman	Assistant Professor	IIT Bombay	Electrical Engineering : Computer Vision, Computational Photography, High Dynamic Range Imaging, Signal/Image Processing, Computational Neuroscience
Shree Prakash Tiwari	Assistant Professor	IIT Bombay	Electrical Engineering: Microelectronics & VLSI Technology, Microfabrication, Organic Electronics, Device Physics and Characterization, New Device Structures
Sonam Mehrotra	Assistant Professor	Rutgers, New Brunswick, U.S.A	Biological Science & Bio-Engineering: Cellular and Molecular Bio sciences, Genetic Engineering, Cancer Biology
Subhashish Banerjee	Assistant Professor	JNU	Physics: Open Quantum Systems; Quantum Information; Non-Equilibrium Statistical Mechanics; Quantum Optics
Sushmita Jha	Assistant Professor	University of North Carolina at Chapel Hill, USA	Cellular and Molecular Neuroscience: Cellular and molecular Neuroscience, Cell and molecular Physiology

VenkataRamana Badarla	Assistant Professor	IIT Madras	Computer Science & Engineering: Transport, Network, MAC layers issues in Wireless ad-hoc, mesh, sensor networks. Also interested in the issues such as, Designing of an autonomous/self-organising wireless networking system, Techniques for implementing reconfigurable MAC-layer, Techniques for implementing a prototype cognitive radio network, Deployment aspects of IPv6, and Issues related to WiMAX.
V. Narayanan	Assistant Professor	IIT Kanpur	Physics: Optics and Solar Field Design, Plasmonics, Laser Produced Plasmas(LPP), Pulsed Laser Deposition (PLD), Plasma Diagnostics (Interferometry & Optical Emission Spectroscopy(OES)) Laser Matter Interaction and Laser Cluster Interaction
Vidya Sarveswaran	Assistant Professor	IIT Madras	English: Literature and Environment (Ecocriticism), Film and Literature, Literatures of the Global South, Regional Literatures in Translation, American Literature
Vivek Vijayvargiya	Assistant Professor	IIT Madras	Mathematics & Statistics: Financial Risk Analysis, Categorical Data Analysis, Regression
Vivek Dixit	Assistant Professor	National University of Singapore	Electrical Engineering: Nanophotonic/Optoelectronic Devices, Semiconductor device physics, III-V semiconductors, Plasmonics

V.V.M. Sarma Chandramouli	Assistant Professor	SUNY at Stony Brook, USA and RUG, The Netherlands	Mathematics & Statistics: Smooth Dynamical Systems, Renormalization of Unimodal maps and Henon-like maps

Institute Staff

Name	Designation
Dr. Kshema Prakash	Deputy Librarian
Amardeep Sharma	Assistant Registrar
Balu Ram Jat	Audit Officer
Ashish Kachhawaha	Account Officer
Gaurav Nigam	Superintendent
Sandeep Singh Chandel	Superintendent
Sudesh Kumar Agnihotri	Jr. Superintendent
Sandeep Pareek	Jr. Superintendent
Himanshu Sharma	Jr. Superintendent
Sharabh Pradhan	Jr. Superintendent
Naresh Chauhan	Jr. Account Officer
Swati Kushwaha	Jr. Assistant
Dhani Ram	Jr. Assistant
Vinay Kumar	Jr. Engineer
Chandresh Pareek	Jr. Engineer
Rajendra Vaishnav	Jr. Accountant
Sharad Srivastava	Jr. Accountant

Dr. Leela Dhar Sanwal	Medical Officer
Dr. M.M. Purohit	Medical Officer
Dr. M.S. Charan	Medical Officer
Apesh Singh Deora	P.T.I.
Kamal Kumar	P.T.I.
Rimpesh Katiyar	Technical Superintendent
Narendra Kumar Singh	Technical Superintendent
Amit Kumar Soni	Sr. Library Information Assistant
Dheerendra Yadav	Junior Technical Superintendent
Sanjay	Junior Technical Superintendent
Vijay	Junior Technical Superintendent
Bharat Pareek	Junior Technical Superintendent
Rinkesh K. Mangal	Junior Technical Superintendent
Shailendra Pratap Singh	Junior Technical Superintendent
Poonam Chand Sankhala	Junior Technical Superintendent
Raju Peta	Junior Technical Superintendent
Vivek Verma	Jr. Lab Assistant
Amit Gupta	Jr. Lab Assistant
Pankaj Singh	Jr. Technical Lab Assistant
Anurag Gupta	Jr. Technical Lab Assistant
Praveen Suthar	Jr. Technical Lab Assistant
Ganpat Choudhary	Jr. Technical Lab Assistant

Staff appointed through Standing Committee

Name of Person	Designation
K. K. Mathur	Asst.Project Officer
S. R. Pandey	Adviser
Bimal Roy	Project Officer
Kundan Kumar	Project Assistant
Kavita Dadhich	Staff Nurse
Leena Goyal	Staff Nurse
Neeraj Gupta	Consultant
Gaurav Mathur	Asst.Project Officer
Rajendra Prasad Utrelia	Technical Assistant
Radheshyam	Sr Project Associate
Krishan Kumar	Junior Assistant
Priyanka Choudhary	Health Assistant
R. K. Jain	Technical Assistant
D. D. Singh	Technical Assistant
Chanchal Khandelval	Dy.Project Manager

Student Activities

- **Unique Governance System (SCHoD)**
  - **NUTS**
  - **PROM**
  - **WAWES**
  - **SAGE**
  - **MAD**
- **Major Student Events**
- **National Festivals**
- **Parivartan**
- **Counselling Service**
- **Student Placement Cell**
- **Alumni Association**
- **List of Students**

Unique Governance System: SCHoD

Students' Council for Holistic Development (SCHoD) is the regulatory body which facilitates and governs all student activities at IIT Jodhpur. With advisory support from the faculty, the SCHoD is run entirely by students. The elected leader of the SCHoD is the president. Apart from acting as the governing body for all the concerns of the students, SCHoD coordinates the activities of five different councils:

1. NUTS: Nurturing and Understanding Technology and Science
2. PROM: Promotion Relations Occasion Management
3. WAVES: Writing Awareness Vocal Entertainment Social Awareness
4. SAGE: Sports Adventure Games And Exploration
5. MAD: Media Arts & Designing

These councils work collectively together and is headed and run by the students for the students. The councils run the extra-curricular activities in the campus. Each council has various clubs through which it functions and performs it various activities.

Cultural, Technical, Sports, Media and Management constitute the entire activities of SCHoD. SCHoD has something to catch the attention of each and every student of IIT Jodhpur. The SCHoD is responsible for planning, designing and executing intra as well as inter collegiate events.

Nurturing and Understanding Technology and Science (NUTS)

NUTS is a part of Student's body SCHoD and provides students an opportunity to explore the amazing world of technology, in order to innovate, to learn, to create, and to try out new things and at the same time have loads and loads of fun. This is a platform for one to realize his/her dream and to develop the next generation technology.

NUTS urges everyone to think beyond conventional boundaries. It also provides support and opportunity to help one unleash his/her imagination and an ideal platform to showcase one's talent. NUTS members rightly say, "We make things fly, we build electronic gadgets, our own communication devices, we dare to stare deep into the sky not only to admire the cosmic wonder, but a lot more; we write our own codes, and we do make our own robots".

Media, Arts and Designing (MAD)

"Media, Arts and Designing" is one of the most active students' councils of IIT Jodhpur. Under the MAD council five clubs function very efficiently and smoothly with the help of an official coordinator and an assistant coordinator besides the student volunteers. All the clubs are under the direct supervision of the General Executive of the council. The following clubs function under the MAD Council:

- Photography and Photo-editing Club.
- Video Editing Club
- Fine Arts Club
- Media Screening
- Animation

This council conducts the intra college cultural festival of IIT Jodhpur "SPANDAN" in collaboration with cultural council of IIT Jodhpur, in addition to conducting several intra college events involving art exhibition, animation, photography, and creativity workshops. The council also assists the core festival committee of the national level inter college techno-cultural festival of IIT Jodhpur "IGNUS." The council aims to nourish the artistic creativity of the IIT Jodhpur community.

Writing, Awareness, Vocals, Entertainment and Social awareness (WAVES)

The WAVES cell is responsible for conducting several events and for providing several avenues for students to express their freedom and creativity. These events include workshops and competitions, helping students showcase, as well as hone their talents. The following clubs function under the WAVES cell:

- ***The Music Club:*** It is the haven for the musically inclined, dealing with the entire musical spectrum, from Hindustani to Western, vocals and instrumentals.
- ***The Dance Club:*** It consists of an extremely competitive team that has performed at festivals across the country.
- ***The Drama Club:*** It produces a wide variety of plays, including comedy and Nukkad (street plays) that raise awareness about burning social issues.

Sports, Adventures, Games, and Explorations (SAGE)

Sports, Adventures, Games and Explorations is an organization dedicated to the improvement of traditional sports education and to the configuring of a unique sports culture through various competitions, festivals, disciplines, and social integration programmes. The SAGE seeks to develop a system that brings a healthier way of life to our student athletes, helps them make better decisions, feel a winning attitude, and assists them in developing their skills and abilities, thereby making them better human beings.

Sports council with its fabulous performance in consecutive four Inter IIT festivals has motivated each and every student of the institute to be a part of it and contribute to it even further. The SAGE has been successfully organizing various inter college and intra college festivals in every academic session like Varchas and Kridansh. The SAGE also has the recreational clubs such as Adventure Club, Carom Club, Chess Club, Bridge Club, Skating Club, and the Yoga Club.

Promotion Relation Occasion Management (PROM)

Promotion Relation Occasion Management, (PROM), is the 5th and newest cell of IIT Jodhpur's Students Council for Holistic Development. A very non-technical cell, PROM deals with the managerial and social aspects of a student's life in IIT Jodhpur. In today's overly competitive world, a student

not only needs to be technically sound, but also has to be capable of putting the deal across the table, and making a generally good impression among their peers, superiors and juniors. A successful person today is recognised by the ease of communication, body language, punctuality, self-confidence and motivational capabilities, as well as proficiency in their field of interest. At IIT Jodhpur, students, through their academics and other extra-curricular activities, attain technical proficiency of the highest level. With the inception of PROM, it is absolutely certain that the students walking out of this campus will also be able to take control and execute activities and jobs as required from them. At IIT Jodhpur, a student will, thus, participate in events technical, cultural, or sporty in nature, while also learning how to plan, organise, conduct and execute such events. Students will also get an opportunity to express and experience as they move from under-graduate students to mature, full-grown individual personalities. PROM provides a platform for budding businessmen, entrepreneurs, and managers. It inculcates in the individual a sense of responsibility and purpose, and helps them decide a plan of action to go about tackling various obstacles.

Major Student Events

The students were successful in nurturing a culture filled with energy and initiative. Students have organized several events, which served as a medium of communication and bonding amongst themselves, given their variegated background and ethnicity. Several major festivals like Diwali, Sankranti, Eid, Holi and Ganesh Chaturthi were celebrated with great enthusiasm. Various sports activities were also regularly conducted to encourage sportsmanship. The faculty members were greatly supportive and promoted these activities. The following are some of the major student activities that had taken place in the campus in the year 2012-2013.

Spandan

Spandan, the annual intra-college cultural fiesta of Indian Institute of Technology, Jodhpur was organized from the 17-19 September, 2012. The theme for this year's festival was 'Scary'. The beginning of the event was marked by a wonderful musical extravaganza by Grammy Award winner, the guitar player, Pandit Vishwa Mohan Bhatt followed by an astounding music show by famous Sarangi player, Dr. Deepak Paramashivan Kaundinya.

The fest had a plethora of events & competitions, and filled with a surfeit of literature and musical events, besides other creative activities like movie scene spoofing, debates and skit presentations. The fest culminated into a grand event with the visit of an Indian filmmaker, a fashion designer, a poet, an artist, a music-lover, a revivalist, and a social worker, Rajah Mujaffar Ali along with his wife Meera Ali which triggered the sensation of love and respect towards the rich and varied Indian cultural heritage. In Mr. Ali's words, "Faith in god sets you free of all fears. Art and all that relates to art creates a spell binding impact on individuals. It has the power and energy to relieve all humanity of terror and generate confidence and peace." With these words, he guided us with his experience and ideas to begin with the new branch on "Art, Culture and Heritage" in IITJ.

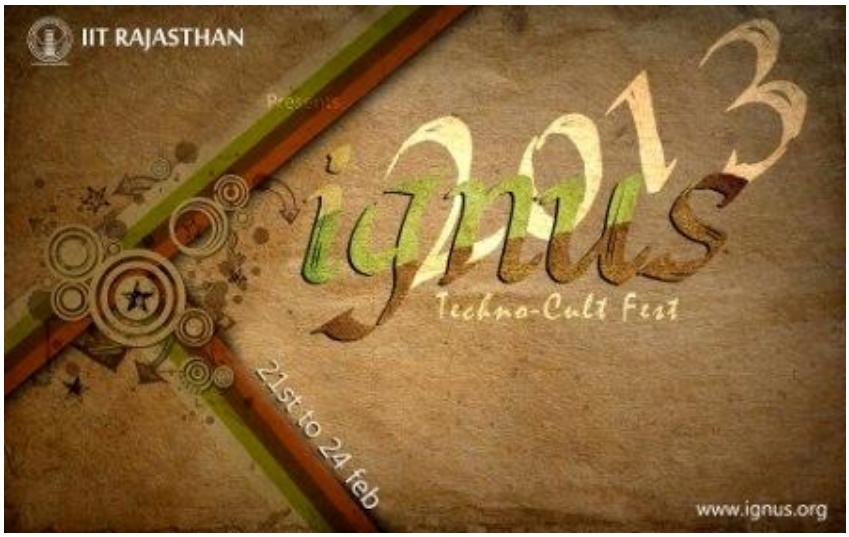
NiMBLE

The intra-college technical festival of IIT Jodhpur, NiMBLE was celebrated from 02-04 November, 2012. It was a worth remembering time and an opportunity to get people acquainted with the open web technologies. A few days just before Nimble 2012, a session for people to get to know the ways in which they can start contributing to Mozilla was organized. The student enthusiasm and participation was unmatched. Major events in this techno-fest were Kill Flash, Web Clone, etc.

This event saw a real quality of ideas that emerged from young minds. It has been a first-hand experience to students in carving out some useful apps purely on web technologies.

Ignus

Ignus 2013 was the third annual socio-techno-cultural festival of IIT Jodhpur which took place from Feb 21-24, 2013 organized in association with Bank of India. This year Ignus saw huge participation from students, corporate houses and government bodies. More than 4000 students from 22 cities across the nation participated in the festival. Living to its tradition of classical melody this year the Sitar Maestro Shubendra Rao performed at the opening ceremony. The performance of Hindi Band 'Agnee' and the famous Bollywood singer 'Rabbi Shergill' on the subsequent nights were the key attraction of the whole festival. The competition 'Clash of Band' emerged as the largest Semi Professional Rock Band Competition of Rajasthan. This year Ignus held its first ever Technical Expo which enjoyed huge participation from students as well as corporate bodies. Industry leaders like Bosch, Tata Motors, DRDO presented their exhibits during the expo. Ignus also witnessed talk by Nobel Prize winner Dr. Adam Guy Riess in the guest lectures. More than 70 cultural and technical events were organized during the four days of the festival. In its spirit to promote entrepreneurship, IIT Jodhpur also hosted IITJ E- Conclave in association with the government of Rajasthan during Ignus. This year Ignus also took the challenge to create environment awareness through its social initiative 'Prakriti' in association with the Jodhpur Development Authority where the team spanned across schools in Jodhpur to sensitize students about the impact of our activities on environment.



Varchas

Varchas is the annual sports festival of IIT Jodhpur. Being the largest sports festival of Rajasthan, Varchas celebrates the spirit of sportsmanship and serves as a platform to showcase the countless hours of perspiration put in by teams to achieve excellence in their sports. Varchas encompasses several sports competitions under its banner.

This year, the sports fest was organized and celebrated from 07-10 February. The event involved participation in various sports from more than 100 reputed colleges in India including IITs and NITs with a footfall of over 2000. Competitions were held in the fields of Basketball, Cricket, Football, Volleyball, Badminton, Athletics, Carrom, Squash, Tennis, Table Tennis, Powerlifting, and Chess.

Besides sports events, IIT Jodhpur also organizes a social initiative and a health initiative under the banner of VARCHAS. They are:

- **Soch:** It is a social initiative of Varchas where we have successfully developed a platform to spread awareness and motivate citizens to take a collective stand against contemporary social issues prevailing in our society and come up with practical solutions.

- **City Marathon:** IIT Jodhpur has been successful in starting a trend of organising a city marathon every year with a vision to spread social awareness and solidarity among the individuals. The concluding year marathon was organised in association with Rajasthan Police and was flagged by Mr. Gaurav Goyal, collector and DM, Jodhpur.

VARCHAS has truly justified its credo year after year – "***Vigour Valour Victory***".

National Festivals

Independence Day Celebrations

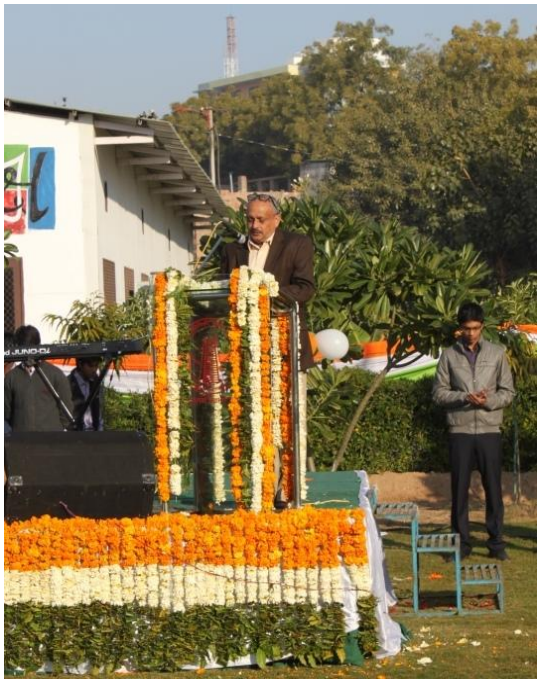
Independence Day was celebrated in the Institute on 15 August 2012 with a great spirit of patriotism. The Director, faculty members, staff and students participated in it. The function started at 9.15 am on the morning of August 15 at the Academic campus with the Director hoisting our national flag, followed by our national anthem and Director's address. The students organized various cultural programmes like performance of IITJ musical band 'Sangam', recitation of patriotic poems, speeches, dance and street play performance by our students' dance and dramatics club, etc. Prizes were distributed to students who aced in academics and extra-curricular activities.

Gandhi Jayanthi Celebrations

IIT Jodhpur community gathered on 02 October 2012 to celebrate the birthday of the father of the nation Mahatma Gandhi, and Lal Bahadur Shastri. The function was illuminated by the inspiring speeches of faculty members and student representatives.

Republic Day Celebrations

The Republic Day celebration 2013 started with a parade of the security wing, followed by the Director's hoisting of the national flag. The Director's address emphasized the significance of the day.

The celebration witnessed several cultural programmes organized by the students. The best performers among students in various academic and extra-curricular activities were felicitated on this occasion.

Parivartan

"Parivartan" means to change. PARIVARTAN is an initiative undertaken by IIT Jodhpur Students Community to improve education level and awareness in the poor and deprived section of society through teaching, youth

counselling and parent counselling. Its mission is "To Bridge the Inequality in Society Through Education." These youngsters are working in the direction of making an educated and well informed society around us. It is an initiative to improve education level and awareness in the poor and deprived section of society through teaching, youth counselling, and parent counselling. This team adopts a village which is very poor, where literacy rate is very low, and where basic facilities of life like health, water, shelter, education etc. are not easily available. The objective is to convert that village into a developed village in such a manner that it will represent an ideal model of a developed village in 21st century.

Parivartan has three verticals around which all its activities revolve which comprises of:

1. Awareness
2. Helping deprived people
3. Research and development for a sustainable model of the lesser established areas of society.

Groups of student under the Parivartan team regularly visits nearby areas, conduct activities and study sessions for small children, organize plays to increase awareness among people about various issues related to their beliefs and directly affecting their lifestyle through our inventiveness.

In 2012, a youth campaign for the nearby villagers, as a part of the "Parivartan" programme.

Counselling Service

Studying at IIT will bring about tremendous academic growth and overall development; however, it will also be accompanied by significant challenges and considerable stress. Our counselling services team provides personalized guidance and necessary resources to help students under duress to achieve their goals. The counselling service is a voluntary organization formed by a group of dedicated students guided by faculty members. It helps students deal with various problems both personal and academic, and plays a significant role in enriching their experiences as students in the institute.

The counselling service was formed in the year 2009 by the first batch of students under the supervision of a faculty advisor. Over the years it has evolved into a significant body comprising of seven faculty members and a total of 25 students. Student guides and members of the counselling team are selected through an annual election process. Each student guide is responsible for the wellbeing of 8-10 students from the 1st year undergraduate batch. The counselling service strives for the wellbeing of all students and assists in their academic and personal growth. It provides voluntary, confidential and free counselling for a wide range of issues that include:

- Academic support: Provides information about the different academic programmes of the institute, efficient time management skills, study skills, exam anxiety etc.
- Personal: Overcoming home-sickness, adjustment to new environment etc.

- Counselling advocacy, psycho-education and referral services to students
- Interaction with the institute and the existing body of students
- Encourages students discover extra-curricular interests/hobbies

Student Placement Cell

The Student Placement Cell (SPC) is entirely run and managed by the students in harmony with the official authorities, thereby taking care of the entire placement and internship procedure. The students coordinate the job of contacting various companies, their interaction with the students, arranging pre-placement talks, tests, interviews.

A goof number of companies in core engineering, IT, and banking sector, including Microsoft, National Instruments, Samsung, Flipkart, Infosys, TCS etc. have visited IIT Jodhpur since then. Public sector companies have also participated in campus placements.

Placement details of 2012-13 are:

Company	Name	Roll No.
Microsoft India Pvt. Ltd.	Akanksha Saran	J09006
	Kumar Ashayam Gupta	J09052
	Shah Chintan Chirag	J09091
	Mayank Agarwal	J09059
	Naveen Shrivastava	J09064
	Shashank Kumar	J09092
	Sumit	J09095
National Instruments	Ety Mittal	PG201172026
	Ayyer Rishi Kalyan	J09025
Flipkart	Akshay Hari Kumar	J09009
	Anurup Ganguli	J09019
	Satyesh Jha	J09088
Cisco	Amit Ranjan Trivedi	J09012
	Amol Pol	J09014
	Aswin Siva	J09023
	Gautam Bajaj	J09036
	Vaibhav Jain	J09104
Samsung Software Engineering Lab	Ankit Karwasra	J09015
	Eshan Jain	J09032
	Jogendra Singh	J09045

	Pranay Balar	J09070
	Rahul Nahata	J09077
	Sonal Gupta	J09094
	Zubin Sortee	J09109
Ittiam Systems Pvt. Ld.	Syed Faizul Hai	J09100
Larsen & Toubro	Kasuvojula Devendar	J09048
	Kshitij Kumar	J09051
Honda Cars	Bhaskar Puri	J09027
	Surendra S Choudhary	J09097
3DPLM Software Solutions Limited	Ashish Pandey	J09021
	Bhuwanesh Kumawat	J09028
Infosys Ltd.	Amrik Singh	PG201172001
	Deepak Kumar Gupta	PG201172004
	Govind Ram	J09039
	Nakul Shashikant Goud	PG201172012
	Nikita Chopra	J09065
	Prashant Babu	J09071
	Saurabh Heda	PG201172019
	Shantanav Chakraborty	PG201172027
	Zafar Ahmed Ansari	PG201172025
Tata Consultancy Services	Rajendra Nagar	J09079
	Rajni Yadav	J09062
Cognizant Technology Solutions	Abhishek Verma	J09004
	Amit Srivastava	J09013
	B. Amulya Sai	J09026
	Anurag Mitttal	J09018
	Darshan Joshi	J09046
	Kunal Chelani	J09053
	Saurabh Garg	J09089
Y2CF Digital Media Pvt. Ltd.	Abhinav Dadhich	J09001
	Garima Jain	PG201172006
	Naman Joshi	PG201172013
	Shobhit Mandloi	J09093
	Yatin Mehandiratta	PG201172024
Freescale Semiconductor	Sarthak Sharma	J09087
Samsung India Software Center	Ankita Samariya	PG201172002
	Govind Salvi	PG201172008
	Prem Raj	J09075
	Rahul Sachan	J09078
	Ravi Bhandari	PG201172016
	Ravin Kumar Jain	J09082
	Umesh Tanwar	PG201172023

Nucleus Software Exports Ltd.	Ruchi Toshniwal	J09084
	Tokala Sai Teja	J09102
CMC Ltd.	Rajput Shailendra Shesh Kumar	J09080
NTT Data FA Insurance Systems (India) Pvt. Ltd.	Govind Salvi	PG201172008
Cairn India	Jatin Rustagi	J09044
	Prashant Kumar Shukla	J09073
Hindustan Petroleum Corporation Limited	Akash Deep	J09007
	Jatin Goyal	J09043
	Nithin Kumar Kokkisa	J09067
	Vinay Kumar	J09106
	Yogesh Kumar Verma	J09108
DRDO / ADA	Akash Deep	J09007
	Gaurav Siwach	J09035
	Jatin Goyal	J09043
	Kiran Kumari	J09050
	M.Vidhya Sagar	J09055
	Manvendra Singh Chauhan	J09058
	Mohammed Aquibuddin Ahmed	J09061
	Pawan Kumar Sharma	J09068
	Prafful Gupta	J09069
	Sushant Gaurav	J09099
	Vinay Kumar	J09106
Samsung India Software Operations	Pawan Kumar Sharma	J09068
Mahindra & Mahindra, AFS	Pallavi Kar	PG201171007
Indian Oil Corporation Limited	Naveen Kumar Gautam	J09063
	Prashant Godara	J09072
	Pratesh Jhari	J09074
	Sanjay Kumar Rajak	J09085
	Sunil Saini	J09096
Whizdom Educare Pvt Ltd	Himanshu Singhvi	PG201172009

Alumni Association

An Alumni Association was formed after the first batch of B.Tech. students completed their programme in April 2012, in order to provide them with a platform where they can stay connected to the institute, their fellow alumni, and junior students.

Office of Alumni Relations is the primary co-ordinating centre for all official communication, events and other activities on behalf of the Chairman, Alumni Relations. The Office along with the Students' Alumni Cell is responsible for organizing the Annual Alumni Meet, Distinguished Alumni Awards (during Convocation) and other alumni related events.

The office works hard to build strong alumni relations and develop a unique platform for an effective communication between the alumni, faculty, students and the institute. The Alumni Relations Office is managed by its Chairman, Dr. Anand Krishnan Plapally along with Coordinator (Students), Dr. Mainak Mazumdar, one staff member and two student members.

List of Students

Doctoral Students

Roll. No.	Name	Centre
PG201081501	Belal Usmani	Energy
PG201081502	Dharmendra Singh Rajpurohit	Energy
PG201081504	Suresh Kumar	Energy
PG201082502	Deepak Kumar Chhangani	ICT
PG201181001	Deepesh Patidar	Energy
PG201181003	Pura Ram	Energy
PG201181004	Vikas Pratap Singh	Energy
PG201181005	Vikash Chandra Janu	Energy
PG201181501	Lokesh Saini	Energy
PG201181502	Surendra Singh Barala	Energy
PG201182001	Abhay Samant	ICT
PG201182003	Heena Rathore	ICT
PG201182005	Puneet Kumar Jain	ICT
PG201182006	Ram Niwash Mahia	ICT
PG201182007	Ravi Raj Choudhary	ICT
PG201182009	Sapana Ranwa	ICT
PG201182010	Saurabh Maheshwari	ICT
PG201182011	Sibani Bisoyi	ICT
PG201182501	Amit Bhati	ICT
PG201182502	Kapil Sharma	ICT
PG201182504	Kuldeep Goswami	ICT
PG201182505	Mohd Najim	ICT
PG201182506	Shrivishal Tripathi	ICT
PG201183001	Rohan Sharma	SS

PG201183501	Parmod Kumar	SS
PG201183502	Preeti Yadav	SS
PG201281001	Ajay Jain	Energy
PG201281002	Dharmesh Kumar	Energy
PG201281003	Poonam Sharma	Energy
PG201281004	Shejale Kiran Prakash	Energy
PG201282002	Deepak Bharti	ICT
PG201282003	Giriraj Vyas	ICT
PG201282006	Onkar Krishna	ICT
PG201282007	Rakesh Kanji	ICT
PG201282009	Suresh Dahiya	ICT
PG201282010	Vaibhav Saini	ICT
PG201282012	Vibha Sahlot	ICT
PG201282501	Shilpa Pandey	ICT
PG201283001	Anoopa Joshi	SS
PG201283003	Manvendra Sharma	SS
PG201283005	Parvinder Singh	SS
PG201283006	Pradumn Kumar Pandey	SS
PG201283007	Rakesh Kumar	SS
PG201283008	Ranveer Singh	SS
PG201283009	Vinay Pratap Singh	SS

M. Tech Students

Roll. No.	Name	Centre
PG201171001	Akash Yadav	Energy
PG201171003	Anurag	Energy
PG201171004	Digpal Kumar	Energy
PG201171005	Gaurav Hedau	Energy
PG201171006	Nupur Rathore	Energy
PG201171007	Pallavi Kar	Energy
PG201171008	Parag Kamal Talukdar	Energy
PG201171009	Priyanka Bhartiya	Energy
PG201171010	Rakesh Kumar	Energy
PG201171011	Rakesh Sarma	Energy
PG201171012	Ram Niwas Verma	Energy
PG201171013	Shubhi Srivastava	Energy
PG201171014	Vinod Kumar Verma	Energy
PG201171015	Ayyaz Siddique	Energy

PG201172001	Amrik Singh	ICT
PG201172002	Ankita Samariya	ICT
PG201172003	Anop Singh	ICT
PG201172004	Deepak Kumar Gupta	ICT
PG201172005	Durgesh Kumar	ICT
PG201172006	Garima Jain	ICT
PG201172007	Gaurav Raj	ICT
PG201172008	Govind Salvi	ICT
PG201172009	Himanshu Singhvi	ICT
PG201172010	Kapil Lahuwa	ICT
PG201172011	Nagabhushan Eswara	ICT
PG201172012	Nakul Shashikant Goud	ICT
PG201172013	Naman Joshi	ICT
PG201172014	Prasad Kulkarni	ICT
PG201172015	Ramnarayan Yadav	ICT
PG201172016	Ravi Bhandari	ICT
PG201172017	Ravi Ranjan	ICT
PG201172018	Satyanarayan Sahu	ICT
PG201172019	Saurabh Heda	ICT
PG201172020	Shahnawaz Abdullah	ICT
PG201172021	Shailendra Soni	ICT
PG201172022	Supratim Shit	ICT
PG201172023	Umesh Tanwar	ICT
PG201172024	Yatin Mehandiratta	ICT
PG201172025	Zafar Ahmed Ansari	ICT
PG201172026	Ety Mittal	ICT
PG201172027	Shantanav Chakraborty	ICT
PG201271001	Avadhesh Kumar Sharma	Energy
PG201271002	Balram Choudhary	Energy
PG201271003	Gurveer Singh	Energy
PG201271005	Rattandeep Singh	Energy
PG201271006	Veenu Kumari	Energy
PG201271008	Zeeshan Ahmed	Energy
PG201271009	Sandeep Gupta	Energy
PG201272001	Ammar Adil	ICT
PG201272002	Deepa	ICT
PG201272004	Hiteshi Jain	ICT
PG201272005	Kulkarni Siddharth Sadanand	ICT
PG201272006	Manjunath Bj	ICT

PG201272007	Naresh Kumar Verma	ICT
PG201272009	Satyam Saxena	ICT
PG201272010	Shakti Gaurav	ICT
PG201272011	Shinde Neha Naresh	ICT
PG201272012	Shirish Mishra	ICT
PG201273001	Adarsh Kumar Misra	SS
PG201273002	Brajesh Kumar Shukla	SS
PG201273004	Saloni Sardana	SS

B. Tech. Students, Batch 2009

Roll. No.	Name	Discipline
J09001	Abhinav Dadhich	EE
J09002	Abhinav Piprotar	EE
J09004	Abhishek Verma	EE
J09005	Ajay Monga	CSE
J09006	Akanksha Saran	CSE
J09007	Akash Deep	EE
J09009	Akshay Hari Kumar	ME
J09010	Akshay Jain	ME
J09011	Amit Lonkar	ME
J09012	Amit Ranjan Trivedi	CSE
J09013	Amit Srivastava	EE
J09014	Amol Pol	CSE
J09015	Ankit Karwasra	CSE
J09016	Ankit Gupta	ME
J09017	Anurag	EE
J09018	Anurag Mittal	EE
J09019	Anurup Ganguli	ME
J09020	Ashish Aseri	CSE
J09021	Ashish Pandey	ME
J09022	Ashok Banjara	EE
J09023	Aswin Siva N	CSE
J09024	Avinash Yadav	EE
J09025	Ayyer Rishi Kalyan	ME
J09026	B Amulya Sai	EE
J09027	Bhaskar Puri	ME
J09028	Bhuwanesh Kumawat	ME
J09029	Boobalan G	EE

J09030	Chetan Bhatsange	EE
J09031	Devula Vinay Kumar	EE
J09032	Eshan Jain	CSE
J09033	Ganduri Rahul Goutham	EE
J09034	Gaurav Kumar	ME
J09035	Gaurav Siwach	ME
J09036	Gautam Bajaj	CSE
J09037	Girish Budhwani	CSE
J09038	Govind Agarwal	EE
J09039	Govind Ram	CSE
J09040	Gundre Vaibhav Pralhad	ME
J09041	Harshit Kumar Pancholi	ME
J09042	Hitesh Choudhary	ME
J09043	Jatin Goyal	ME
J09044	Jatin Rustagi	EE
J09045	Jogendra Singh	CSE
J09046	Joshi Darshan Rajeev	EE
J09047	Kalpana Verma	CSE
J09048	Kasuvojula Devendar	ME
J09049	Keshav Kumar	CSE
J09050	Kiran Kumari	CSE
J09051	Kshitij Kumar	ME
J09052	Kumar Ashayam Gupta	CSE
J09053	Kunal Chelani	EE
J09054	Lakhan Singh Jatav	ME
J09055	M. Vidhya Sagar	EE
J09056	Mana Ram	ME
J09057	Manish Kumar Jain	CSE
J09058	Manvendra Singh Chauhan	EE
J09059	Mayank Agarwal	CSE
J09060	Mohammad Firoz	ME
J09061	Mohammed Aquibuddin Ahmed	EE
J09062	Rajni Yadav	EE
J09063	Naveen Kumar Gautam	EE
J09064	Naveen Shrivastava	CSE
J09065	Nikita Chopra	CSE
J09067	Nithin Kumar Kokkisa	ME
J09068	Pawan Kumar Sharma	CSE
J09069	Prafful Gupta	EE

J09070	Pranay Balar	CSE
J09071	Prashant Babu	CSE
J09072	Prashant Godara	ME
J09073	Prashant Kumar Shukla	ME
J09074	Pratesh Jhari	ME
J09075	Prem Raj	CSE
J09076	Radhe Shyam Meena	EE
J09077	Rahul Nahata	CSE
J09078	Rahul Sachan	CSE
J09079	Rajendra Nagar	EE
J09080	Rajput Shailendra Shesh Kumar	CSE
J09081	Rameshwar Prasad Meghwal	CSE
J09082	Ravin Kumar Jain	CSE
J09083	Rohit Jangir	CSE
J09084	Ruchi Toshniwal	CSE
J09085	Sanjay Kumar Rajak	ME
J09086	Sanjay Kumar Rav	CSE
J09087	Sarthak Sharma	EE
J09088	Satyesh Jha	ME
J09089	Saurabh Garg	EE
J09090	Saurajit Sar	EE
J09091	Shah Chintan Chirag	CSE
J09092	Shashank Kumar	CSE
J09093	Shobhit Mandloi	EE
J09094	Sonal Gupta	CSE
J09095	Sumit	CSE
J09096	Sunil Saini	EE
J09097	Surendra S Choudhary	ME
J09098	Surendra Verma	EE
J09099	Sushant Gaurav	EE
J09100	Syed Faizul Hai	EE
J09101	Tambade Narendra Satish	ME
J09102	Tokala Sai Teja	CSE
J09103	Utkarsha Verma	EE
J09104	Vaibhav Jain	CSE
J09105	Vennam Samuel Susmith	ME
J09106	Vinay Kumar	ME
J09107	Vivek Sharma	EE
J09108	Yogesh Kumar Verma	EE

J09109	Zubin Sortee	CSE

B. Tech. Students, Batch 2010

Roll. No.	Name	Discipline
UG201010001	Abhishek Anand	CSE
UG201010002	Aman Deep	CSE
UG201010003	Amar Singh Saini	CSE
UG201010004	Anurag Saini	CSE
UG201010005	Bollempalli Trivikram Chowdary	CSE
UG201010006	Dheeraj Tak	CSE
UG201010007	Godugu Ravi Kiran	CSE
UG201010008	Hemlata Soni	CSE
UG201010009	Junaid Masood	CSE
UG201010010	Kanchan Kumari	CSE
UG201010011	Khusheeram Meena	CSE
UG201010012	Kishor Mehra	CSE
UG201010013	Lalit Yadav	CSE
UG201010014	Mahesh Chand Gurjar	CSE
UG201010015	Mandeep Singh Yadav	CSE
UG201010016	Manish Kumawat	CSE
UG201010017	Manpreet Singh Bedi	CSE
UG201010018	Mohd Asad	CSE
UG201010019	Mohd Hamzah Khan	CSE
UG201010020	Monu	CSE
UG201010021	Narendra Meena	CSE
UG201010022	Nishchay Kala	CSE
UG201010023	Pankaj Agrawal	CSE
UG201010024	Pankaj Bhardwaj	CSE
UG201010025	Pankaj Khandelwal	CSE
UG201010026	Pavan Meena	CSE
UG201010027	Pawan Meena	CSE
UG201010028	Reena Yadav	CSE
UG201010029	Rohit Gupta	CSE
UG201010030	S Praveenkumar	CSE
UG201010031	Saurabh Singh	CSE
UG201010032	Sourabh Maheshwari	CSE
UG201010033	Sukalkar Pavan Vijayrao	CSE
UG201010034	Sumit Jangid	CSE

UG201010035	Sunita Pateer	CSE
UG201010036	Surendra Singh Meena	CSE
UG201010037	Tapish Rathore	CSE
UG201010038	Vemana Vinith	CSE
UG201010039	Vikas Goyal	CSE
UG201010040	Vikas Yadav	CSE
UG201010041	Vinod Kumar Meena	CSE
UG201010042	Vishwas Garg	CSE
UG201010043	Yogesh Kumar Gupta	CSE
UG201010044	Manu Agarwal	CSE
UG201011001	Aayush Verma	EE
UG201011002	Amit Kumar Verma	EE
UG201011003	Arun Balajee V	EE
UG201011004	Bharat Kumar Tanwar	EE
UG201011005	Chintapalli Siva Pratheek	EE
UG201011006	Dilip Kumar Meena	EE
UG201011008	Ghatge Mayur Sambhaji	EE
UG201011009	Himanshu Jaiswal	EE
UG201011010	Mahesh Chandra M	EE
UG201011011	Manish Kumar Meena	EE
UG201011013	Mukul Bansal	EE
UG201011014	Narendra Kumar Singh	EE
UG201011016	Nimmarthi Vara Prasad	EE
UG201011017	Pasunoori Prashanth	EE
UG201011018	Pote Rohan Ramchandra	EE
UG201011019	Prince Gupta	EE
UG201011020	Priya Dhandev	EE
UG201011021	Rahul Malav	EE
UG201011022	Rahul Meena	EE
UG201011023	Rajat Jain	EE
UG201011024	Rajeev Kumar	EE
UG201011025	Ravi Mahavar	EE
UG201011026	Rinku Meena	EE
UG201011027	Rishi Kumar	EE
UG201011028	Rit Shekhawat	EE
UG201011029	Saba Suhail	EE
UG201011030	Sandeep Kumar Singh	EE
UG201011031	Saurabh Santosh	EE
UG201011032	Shashikant	EE

UG201011033	Siddharth Singh Rao	EE
UG201011034	Shiv Singh Meena	EE
UG201011035	Srikanth M	EE
UG201011036	Sudesh Gora	EE
UG201011037	Sudhir Kumar Singh	EE
UG201011038	Surya Pratap Singh Yadav	EE
UG201011039	Tarun Patel	EE
UG201011040	Tirumani Vamshi Krishna	EE
UG201011041	Veepee Singh Meena	EE
UG201011042	Vikash Kumar	EE
UG201011043	Vinod Meena	EE
UG201011044	Vivek Dubey	EE
UG201011045	Yogendra Kumar Goyal	EE
UG201011046	Aswin Suresh	EE
UG201011047	Hemant Verma	EE
UG201012001	Abhinav	ME
UG201012002	Aditya Budaraju	ME
UG201012003	Aditya Ranjan	ME
UG201012004	Akash Bansal	ME
UG201012005	Akhilendra Singh	ME
UG201012006	Aman Doharey	ME
UG201012007	Ankur Hasija	ME
UG201012008	Anshul Gupta	ME
UG201012009	Anuj Kumar	ME
UG201012010	Ashok Kumar Meena	ME
UG201012012	Chetram Meena	ME
UG201012014	Gudla Sushanth	ME
UG201012015	Gaurav Kumar	ME
UG201012018	Jagmohan Shree Rao	ME
UG201012019	Jaideep	ME
UG201012020	Jai Prakash Meena	ME
UG201012021	Kuldeep Singh	ME
UG201012022	Manraj Meena	ME
UG201012023	Mohit Naneria	ME
UG201012024	Niket Kumar Singh	ME
UG201012025	Nishant Kumar	ME
UG201012026	Nitesh Kumar	ME
UG201012027	Nitin Katiyar	ME
UG201012028	Pradeep Rai	ME

UG201012030	Rooga Ram	ME
UG201012032	Sachin Gupta	ME
UG201012033	Sarvesh Dayal	ME
UG201012034	Shaikh Abu Amsal	ME
UG201012035	Shivendra Rai	ME
UG201012036	Siddarth Jain	ME
UG201012037	Sitaram Meena	ME
UG201012038	Snehlata Joshi	ME
UG201012039	Tanmay Sethi	ME
UG201012040	Utkarsh Trivedi	ME
UG201012041	Vasu Goenka	ME
UG201012042	Vijay Singh Meena	ME
UG201012043	Vipin Kumar	ME
UG201012044	Vivek Ganj Gahlot	ME
UG201012045	Yatin Chaudhary	ME
UG201012046	Yogesh Kumar	ME

B. Tech. Students, Batch 2011

Roll. No.	Name	Discipline
UG201110001	Abhishek Saini	CSE
UG201110002	Amit Raj	CSE
UG201110003	Apurv Gupta	CSE
UG201110004	Ashish Kumar	CSE
UG201110005	Banoth Surya Prasad	CSE
UG201110006	Debashish Ghatak	CSE
UG201110007	Deven Bhooshan	CSE
UG201110008	Gurupratap	CSE
UG201110009	Hari Om Gaur	CSE
UG201110010	Heena Masuriya	CSE
UG201110011	Hemraj Kumawat	CSE
UG201110012	Jitendra Kumar Chaudhary	CSE
UG201110013	Jitendra Singh Garhwal	CSE
UG201110014	Kalpnath Rao	CSE
UG201110015	Kankanti Nithin Veer Reddy	CSE
UG201110017	Kuchana Maharshi Devaraj	CSE
UG201110018	Mahesh	CSE
UG201110019	Mayank Agrawal	CSE
UG201110020	Mayank Mittal	CSE

UG201110021	Palak Samaiya	CSE
UG201110022	Pitta Divya Shree	CSE
UG201110023	Praneeth A S	CSE
UG201110024	Prashant Rastogi	CSE
UG201110025	Ravi Kumar Meena	CSE
UG201110026	Revti Raman Singh	CSE
UG201110027	Rishi Mishra	CSE
UG201110028	Sahil Kharb	CSE
UG201110029	Sanjeev Kumar	CSE
UG201110030	Santosh Kumar Siddharth	CSE
UG201110031	Saurabh Kumar Gangwar	CSE
UG201110032	Shah Jenil Dilip	CSE
UG201110033	Shivam Verma	CSE
UG201110034	Siddharth Kumar Singh	CSE
UG201110035	Siddharth Maheshwari	CSE
UG201110036	Sonu Mehta	CSE
UG201110037	Syed Navaid Ahmad	CSE
UG201110038	Yash Kumar Sonthalia	CSE
UG201110039	Yeravothula Rohith	CSE
UG201110040	Gatla Rajasekhar Reddy	CSE
UG201111001	Abhishek Bassan	EE
UG201111002	Abhishek Pilania	EE
UG201111003	Anshul Narayan Bhatt	EE
UG201111004	Anshul Singh Parihar	EE
UG201111005	Anurag Dharmawat	EE
UG201111006	Atul Agarwal	EE
UG201111007	Battula Sasi Kaushik	EE
UG201111008	Brajesh Kumar	EE
UG201111009	Bussa Pavan Kumar	EE
UG201111010	Damacharla Sandeep	EE
UG201111011	Devendra Kumar Jangid	EE
UG201111012	Gajarla Ravi Teja	EE
UG201111014	Guneet Singh Mehta	EE
UG201111015	Hari Om Meena	EE
UG201111016	Harshit Dixit	EE
UG201111017	Hem Singh Meena	EE
UG201111018	Hemant Kumar Biloniya	EE
UG201111019	Kadoo Amruta Anil	EE
UG201111020	Kotha Sudheer	EE

UG201111021	Koyinni Deekshitha	EE
UG201111022	Krishna Kumar Damolia	EE
UG201111023	Kuldeep Singh Rathore	EE
UG201111024	Kumar Saurav	EE
UG201111025	Lalithkumar P	EE
UG201111026	Prashant Mittal	EE
UG201111027	Rahul Rathore	EE
UG201111028	Rangaraju Yashomani Srikar	EE
UG201111029	Ravindra Kumar Sharma	EE
UG201111030	Ravyansh Kumar	EE
UG201111031	Sanchit Kumar Singh	EE
UG201111032	Satyendra Kumar Gautam	EE
UG201111033	Shivalika Agarwal	EE
UG201111034	Shivam Punia	EE
UG201111035	Sudhanshu Singh	EE
UG201111036	Sunil Kumar	EE
UG201111037	Vadakattu Sreeja	EE
UG201111038	Vineet Kumar	EE
UG201111039	Voruganti Surya Teja	EE
UG201112001	Alvin Roy Aliath	ME
UG201112002	Ankit Aggarwal	ME
UG201112003	Ashutosh Mittal	ME
UG201112004	Ashutosh Vishwakarma	ME
UG201112005	Atishay Jain	ME
UG201112006	C Sri Harsha	ME
UG201112007	Chetan Regar	ME
UG201112008	Chilakamarri Satya Ranga Prasanth	ME
UG201112009	Deep Kumar	ME
UG201112010	Deshraj Meena	ME
UG201112011	Devesh Singh	ME
UG201112012	Dheeraj	ME
UG201112013	Gajanand Saini	ME
UG201112014	Gautam Kumar	ME
UG201112015	Harsh Kumar Karmveer	ME
UG201112016	Harshit Srivastava	ME
UG201112017	Himanshu Sahu	ME
UG201112018	Kishan Sharma	ME
UG201112019	Kothapally Mounish	ME
UG201112020	Kunal Vishnu Paraswani	ME

UG201112021	Kundan Singh Meena	ME
UG201112022	Maninder Singh	ME
UG201112023	Manish Sachdeva	ME
UG201112024	Mohit Dadhich	ME
UG201112025	Mukul Kumar Gupta	ME
UG201112026	Navneet Kumar Yadav	ME
UG201112027	Neeraj Kumar	ME
UG201112028	Rahul Sathya Babu	ME
UG201112029	Sagar Anand Ramgare	ME
UG201112030	Sandeep Shankarrao Hatte	ME
UG201112031	Sanket Kinage	ME
UG201112032	Shravan Mishra	ME
UG201112033	Siddee Meena	ME
UG201112035	Smriti Jain	ME
UG201112036	Tagde Prateek Prakash	ME
UG201112037	Vaidya Kedar Sanjay	ME
UG201112038	Vikash	ME
UG201112039	Wins Goyal	ME
UG201113001	Arvind Pandey	SS
UG201113002	Abhishek Singh	SS
UG201113003	Ajay Sunarthi	SS
UG201113004	Akhil Arora	SS
UG201113005	Aniruddh Ramrakhyani	SS
UG201113006	Ankit Singh	SS
UG201113007	Arpit Agarwal	SS
UG201113008	Atharv S Ghaisas	SS
UG201113010	Desidi Siva Prakash	SS
UG201113011	Dhiraj Bhatt	SS
UG201113012	Divya Grover	SS
UG201113013	Gurjot Singh	SS
UG201113014	Himanshu Shukla	SS
UG201113015	Jaswant	SS
UG201113016	Jitendra Kumar Meena	SS
UG201113017	Kakkirala Anuroop	SS
UG201113018	Kowlagi Sudhendra Narayan	SS
UG201113019	Krati Saxena	SS
UG201113020	Kusum Lata Meena	SS
UG201113022	M Hari Haran	SS
UG201113023	Manthani Tejaswi	SS

UG201113024	Mohamed Rehan Mohamed Sagheer	SS
UG201113025	Neelesh Dwivedi	SS
UG201113026	Neha Singh Chauhan	SS
UG201113027	P Vivek	SS
UG201113028	Pratik Kumar	SS
UG201113029	Rahul Kumar	SS
UG201113030	Raj Rohit Jalem	SS
UG201113032	Rishabh Jain	SS
UG201113033	Sankha Narayan Guria	SS
UG201113036	Shinde Sahil Anil	SS
UG201113037	Tavish Garg	SS
UG201113039	Vinnakota Sai Rakshit	SS

B. Tech. Students, Batch 2012

Roll. No.	Name	Discipline
UG201210001	Abhishek Kumar **Cse**	CSE
UG201210002	Aditya Yadav	CSE
UG201210003	Akash Mishra	CSE
UG201210004	Akshit Jain	CSE
UG201210005	Aseem Raj Baranwal	CSE
UG201210006	Asheet Kumar	CSE
UG201210007	Attanti Madhurya	CSE
UG201210008	Bandela Prathyusha	CSE
UG201210009	Basamgari Harika	CSE
UG201210010	Bundele Manas Mahesh	CSE
UG201210011	Dhake Akash Hiraman	CSE
UG201210012	Dinesh Kumar Jangra	CSE
UG201210013	Dinesh Kumar Saini	CSE
UG201210014	Gaurav Shastri	CSE
UG201210015	Gondi Dedeepya Sai	CSE
UG201210016	Gorla Uhasree	CSE
UG201210017	Jinank Jain	CSE
UG201210018	Kalshetti Pratik Mallinath	CSE
UG201210019	Kunal Dadheech	CSE
UG201210020	Mala Muthyalappa	CSE
UG201210021	Manish Jaiswal	CSE
UG201210022	N K Kiran	CSE
UG201210023	Pankaj Kumar	CSE

UG201210024	Pawan Kumar Saini	CSE
UG201210025	Rajesh Kumar Meena	CSE
UG201210026	Rishabh Garg	CSE
UG201210027	Rishikesh Meena	CSE
UG201210028	Ritesh Kumar	CSE
UG201210029	Rohan Khanna	CSE
UG201210030	Sachin Grover	CSE
UG201210031	Samarth Kumar Goel	CSE
UG201210032	Shah Akshat Mukeshkumar	CSE
UG201210033	Shivam Kumar Garg	CSE
UG201210034	Siddharth Talesra	CSE
UG201210035	Sonika Agrawal	CSE
UG201210036	Sunil Kumar	CSE
UG201210037	Vaibhav Singh Khokhar	CSE
UG201210038	Vijendra Sukariya	CSE
UG201210039	Vikas Meena	CSE
UG201211001	Abhishek Thepra	EE
UG201211002	Ajay Charan	EE
UG201211003	Akarsh Rastogi	EE
UG201211004	Akshay Arya	EE
UG201211006	Anubhuti Mittal	EE
UG201211007	Ashwani Kumar	EE
UG201211008	Ashwani Nainawat	EE
UG201211009	Deepak Verma	EE
UG201211010	Devabattini Sriharsha	EE
UG201211011	Dharm Raj Meena	EE
UG201211012	Dheeraj P	EE
UG201211013	Dinesh Gurjar	EE
UG201211014	Farazuddin Ansari	EE
UG201211015	Ghanshyam	EE
UG201211016	Hitesh Kumar Singhal	EE
UG201211017	K V Vikas Reddy	EE
UG201211018	Lalit Mirdha	EE
UG201211019	Mamta Dhaka	EE
UG201211020	Mukesh Kumar	EE
UG201211021	Nisha Agrawal	EE
UG201211022	Nishit Umesh Parekh	EE
UG201211023	Pawan Kumar Verma	EE
UG201211024	Piyush Dugar	EE

UG201211025	Prakash Gehlot	EE
UG201211027	Rajat	EE
UG201211028	Rajat R Rahatgaonkar	EE
UG201211029	Rajnesh Meena	EE
UG201211030	Sanchit Gupta	EE
UG201211031	Sanket Jain	EE
UG201211032	Santosh Kumar Meena	EE
UG201211033	Saurav Kumar	EE
UG201211034	Sharath Kuntanhal	EE
UG201211035	Shivam Upadhyaya	EE
UG201211036	Shrish Lal Bhatnagar	EE
UG201211037	Sriramadasu Ashok Kumar	EE
UG201211038	Sunil Saran	EE
UG201211039	Tarun Vatwani	EE
UG201211040	Upendra Kumar Nagar	EE
UG201211041	Vinay Shankar Saxena	EE
UG201212001	Aditya Khandelwal	ME
UG201212002	Ajay Kumar Jagetiya	ME
UG201212003	Anjali Bansiwal	ME
UG201212004	Ankit Jain	ME
UG201212005	Ashish Kumar	ME
UG201212006	Ashish Kumar	ME
UG201212007	Atul Dubey	ME
UG201212008	Ayush Bhadauria	ME
UG201212009	B V Kishore	ME
UG201212010	Balla Raghavendar Goud	ME
UG201212011	Boddupalli Nibodh	ME
UG201212012	Chamarthy Kameswara Shiva Dinesh	ME
UG201212013	Chetan Gupta	ME
UG201212014	Daman	ME
UG201212015	Dilkhush MEENA	ME
UG201212016	Himanshu Takwani	ME
UG201212017	Himanshu Yadav	ME
UG201212018	Kamlesh Aseri	ME
UG201212019	Kanak Shrivastava	ME
UG201212020	Manish Soni	ME
UG201212021	N Vinaykumar Reddy	ME
UG201212022	Navneet Mittal	ME
UG201212023	Pavan Kumar Shakya	ME

UG201212024	Sachin Yadav	ME
UG201212025	Sandeep Kumar Meena	ME
UG201212026	Saurabh Jain	ME
UG201212027	Saurabh Pandey	ME
UG201212028	Shah Jigar Deepak	ME
UG201212030	Shreyas Srivastava	ME
UG201212031	Shubham Gupta	ME
UG201212032	Snigdhadeep Moitra	ME
UG201212033	Sonu Siba Bara	ME
UG201212034	Surendra Pal Singh	ME
UG201212035	Tapesh Kumar Mourya	ME
UG201212036	Thani Aswanth	ME
UG201212037	Vaibhav Gupta	ME
UG201212038	Varun Suryan	ME
UG201212039	Vikash Kumar Goenka	ME
UG201212040	Vishal Kumar	ME
UG201213002	Anmol	SS
UG201213003	Anshuman Singh	SS
UG201213004	Antos C Varghese	SS
UG201213005	Divya Nagar	SS
UG201213006	Gaurav Choudhary	SS
UG201213007	Gourab Kumar Patro	SS
UG201213008	Hari Om Meena	SS
UG201213011	Kirti Vardhan Rathore	SS
UG201213013	Kota V Aakash	SS
UG201213014	Kshitij Soni	SS
UG201213016	Mahendra Kachhawa	SS
UG201213018	Manish Malhotra	SS
UG201213019	Narender Kumar	SS
UG201213020	Paladugu Venkata Karteek	SS
UG201213021	Palash Jain	SS
UG201213022	Parag Rahangdale	SS
UG201213023	Pise Indraneel Rajnish	SS
UG201213024	Pragati Nagar	SS
UG201213025	Prasoon	SS
UG201213026	Priyanka Raju Masne	SS
UG201213027	Purvi Tiwari	SS
UG201213028	Raghunath Meena	SS
UG201213029	Ravi Kumar	SS

UG201213031	Rochika	SS
UG201213033	Sharwan Songara	SS
UG201213034	Shivam Choudhary	SS
UG201213035	Shreshtha Garg	SS
UG201213036	Sunil Suthar	SS
UG201213037	Vibhav Sharma	SS

Financial Brief

The MHRD has released a sum of Rs. 4,000.00 Lakhs as Grant-in-Aid under Normal Plan Head and Rs. 4,962.94 Lakh as opening balance as on 01-04-2012. The internal income of the Institute was Rs. 674.79 Lakh. The total Plan expenditure during the year was Rs. 5,025.14 Lakhs (Recurring Rs. 2,028.75 Lakh and Non-Recurring Rs.2,996.39 Lakh).