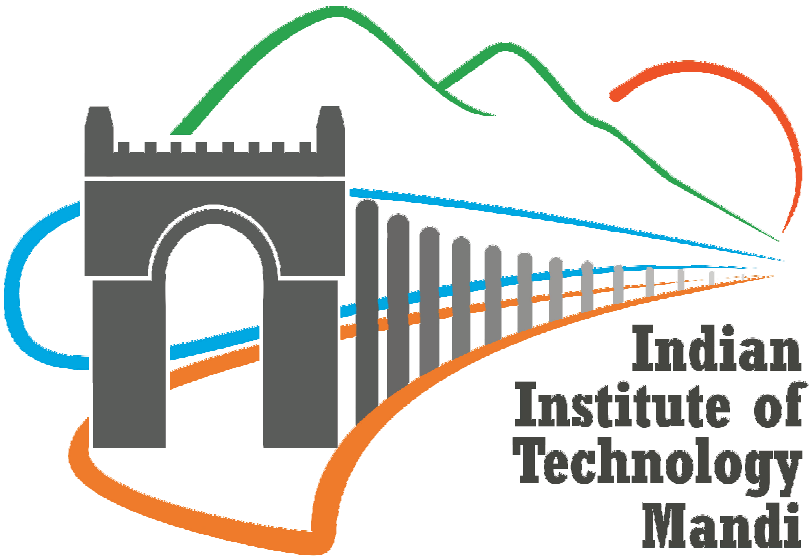

ANNUAL REPORT

2011 - 12

INDIAN INSTITUTE OF TECHNOLOGY MANDI

MANDI - 175001, HIMACHAL PRADESH, INDIA

VISION

To be a leader in science and technology education, knowledge creation and innovation, in an India marching towards a just, inclusive and sustainable society

CONTENTS

MISSION

- To create knowledge through team effort and individually for the benefit of society
- To impart education to produce professionals capable of leading efforts towards innovative products and processes for the development of the Himalayan region in particular and our country and humanity in general
- To inculcate a spirit of entrepreneurship and to impart the ability to devise globally recognized solutions for the problems of society and industry, particularly in the fragile eco-system of the Himalayas
- To train teachers capable of inspiring the next generation of engineers, scientists and researchers
- To work intensely with industry in pursuit of the above goals of education and research, leading to the development of cutting edge and commercially-viable technologies
- To operate in an ambience marked by overriding respect for ability and merit

From the Director's Desk

The year 2011-12 has been one of growth and consolidation for the fledgling IIT Mandi. We added one more batch of 120 B.Tech. students and the number of MS and PhD scholars increased dramatically. Several faculty were recruited especially in Humanities and Social Sciences. To support all of these, there is a steady growth of the staff strength.

A major milestone on the path to renown for experimental research was the synthesis of the first novel material in IIT Mandi's newly set up laboratories. This was described in the paper “2-Aminopyridine derivative as fluorescence 'On–Off' molecular switch for selective detection of Fe3+/Hg2+" by Rik Rani Koner, Sougata Sinha, Sunil Kumar, Chayan K. Nandi, and Subrata Ghosh that appeared in the international journal Tetrahedron Letters in February, 2012. The Characterization and Synthesis Labs now include all the basic facilities. In addition, a sophisticated powder X-ray defractometer (XRD) costing Rs. 1.75 crores was procured and installed.

With the first batch of students in the 3rd year it was time to arrange industry internships for them. Owing to the colder climate we decided to have a long winter break in December and January. Although most companies in India normally takes interns only in the summer, we were able to arrange winter internships for most of our students. During the year, the Career and Placement Cell was set up and started the placement process for 2012-13.

The 530-acre permanent campus in the Uhl river valley at Kamand is one of the major attractions of IIT Mandi for bright young faculty and students. Development of this campus and shifting academic activities to it is a high priority for us. In June 2011 after a rigorous process we appointed M/s BDP as the Architect and Design consultant for phase 1 construction. This will accommodate about 1,700

students. By October they had completed design of the first 11 buildings to be located in the south campus. The CPWD was entrusted with the task of supervising the construction. The contract was awarded to M/s Ahluwalia Contracts (India) Limited and the ground breaking ceremony was held on 13th April 2012.

Meanwhile, some of the existing buildings inherited from the Animal Husbandry department were renovated. A 4,000 sqft hay store was converted into a mechanical workshop. Complete with lathes, milling machines, CNC machines, etc this Workshop has been used by students for course work and projects since March 2012. A 6,000 sqft cow shed was renovated to serve as laboratories. Today, it houses our first sophisticated instrument, the powder XRD.

To support continuing growth in interdisciplinary research and teaching an efficient administrative structure is required. IIT Mandi has adopted a scheme of more democratic Execoms in place of the traditional Deanship normally followed in IITs and other universities. This distributes responsibilities among a larger number of young faculty members. As a measure of the effectiveness of our administrative structure, the small Finance and Accounts Section with just a handful of people was able to finalize the 2011-12 accounts and balance sheet, including auditing by our CA, and give it to me for signature on 5th May 2012.

We expect the year 2012-13 to be even more exciting and eventful for the growing IIT Mandi. Our plans for the year include completion of Phase 1 South construction and shifting of part of the Institute to the new campus, our first placement season, completion of several sophisticated research labs, implementation of the new design-oriented B.Tech. curriculum, and international recognitions won by IIT faculty and students in academic and extra-curricular pursuits.

Prof. T.A. Gonsalves

Director

PROGRAMS OFFERED

Undergraduate

- Computer Science & Engineering
- Electrical Engineering
- Mechanical Engineering

Postgraduate

- MS Computer Science
- MS Mechanical
- MS Electrical

Doctoral

- Physics
- Chemistry
- Maths
- Computer Science
- Mechanical
- Electrical
- Humanities

ACADEMIC SCHOOLS

To encourage synergistic mingling of minds, the faculty are organised in broad multi-disciplinary Schools. The offices and labs of the different Schools are co-located, even overlapping. While some faculty work in pure research, others work on applied research in collaboration with industry. The Indian Institute of Technology Mandi has a strategic focus on partnerships with like-minded institutions and industries in India and abroad.

School of Computing and Electrical Engineering:

The School of Computing and Electrical Engg. (SCEE) brings together faculty involved in key technologies in Computing, Communication, Electronics and Electrical Engineering. The emphasis of research by the faculty is on a wide range of issues in theoretical and application-oriented topics as well as VLSI and Materials aspects in the above subjects. The faculty has a mix of people with backgrounds in Industry and Academics. We also have joint faculty positions with the School of Basic Sciences and School of Humanities. The faculty has a mix of young and experienced people. The School has sponsored research projects from Industry and Government as well as international collaborations with foreign universities in projects sponsored by the European Unit. The School is actively recruiting new faculty for its growth areas. The School runs two B.Tech programmes in Computer Science and Electrical Engineering as well as M.S. and Ph.D programmes. A Cloud Computing facility is being set up by the School for Institute-wide use for software-based labs and other cloud-computing research. A high-performance computing facility is also on the anvil for region-wide use in North-west India.

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Research Projects

IIT Mandi Seed grant projects

Project	Principal investigator	Project cost(in lac)
Person authentication using audio-visual biometrics	Anil K. Sao	5,00,000
Grid connected / stand-alone power electronic converter control	Bharat Singh Rajpurohit	5,50,000

Sponsored Projects

Project	Principal investigator	Project cost (in lac)	Sponsoring agency
Development of text to speech systems in Indian Languages	Anil Kumar Sao	77,00,000	DIT
NKN Electronic Class-room	Bharat Singh Rajpurohit Dinil M. Divakaran	11,80,000/-	NICSI
Estimation Quality of Broadband Internet in India.	T. A. Gonsalves Jhunjhunwala	12,00,000/-	NIXI
Distributed Document Management Systems	Dinil M. Divakaran T.A.Gonsalves	6,50,000/-	RTBI

Progress report of the projects:

Person authentication using audio-visual biometrics

PI - Anil K. Sao

In audio-visual biometrics speech is utilized together with static video frames of the face or certain parts of the face, and /or video sequences of the face or mouth area. The focus of the present study has been to explore suitable representations

of audio and video, which will help in efficient extraction of correlation between the two modalities to recognize the person.

The significance of dictionary in sparse coding based face recognition was investigated. Primarily the problem of sufficiency of training data in various illumination conditions was addressed. The dictionary was generated using a lower dimensional representation of image, which emphasizes the subject specific unique information of the face image. This representation is called weighted decomposition (WD) face image, because it attempts to give more weightage to unique information of face image. The effect of illumination in computation of WD face image is reduced using edginess based representation of image, which is derived using one-dimensional (1-D) processing of image. 1-D processing provides multiple partial evidences, which are combined to enhance the face recognition performance. The experimental results suggest that the proposed approach addresses the issue of sufficiency of training data efficiently. Studies on exploring the significance of dictionary in sparse coding based Audio-Visual Biometrics are in progress.

Grid Connected/ stand-alone power electronic converter control
Pl-Bharat Singh Rajpurohit

In the growing electricity supply industry and open access market for electricity worldwide, renewable energy sources (RES) are getting added into the electric grid system. A significant emphasis is placed on the cost-effective utilization of this energy resource to simultaneously achieve a quality and reliable power supply. Power electronic systems (PES) are the crucial interfacing devices which matches output voltage, perform DC to AC (or AC to DC) conversion, control power quality and power flow, and have high efficiency on 10% to 100% power range. The objective of the present study has been to develop simulations and experimental

set-ups for interfaces for RES with grid connected PES control using intelligent and advanced digital signal processing techniques.

The literature review has been completed. The permanent equipment required for the study have been procured. A detailed mathematical model for common-platform simulation model for 100 kW Solar Photovoltaic (SPV) system connected with power systems and feeding power to it has been developed. This common simulation model has been used to compare different switching algorithms performance for an efficient power injection to power systems. An algorithms has been developed for Maximum Power Point Tracking (MPPT) based on Perturb-and-Observe (P&O) method and the Incremental Conductance (INC) method. Work is in progress for the development for Computational Intelligence based algorithms. Experimental prototype for validation of hardware and simulation results will be developed.

Text to speech systems for Indian languages

Pl-Anil Kumar Sao

The objective of this work is to develop a Text to speech Synthesis System (TTS) for Rajasthani language. Rajasthani language comprises of five primary dialects - Marwari, Mewari, Dhundhari, Mewati and Harauti. Our focus will be in to built TTS system for Marwari, which is most widely spoken dialects in Rajasthan. For recording of speech in Rajasthani language, we have identified text from from Manak magazine, AIR (All India Radio) news scripts for Rajasthani news, story books. In order to bring diversity, we have selected texts from different domains, such as agriculture, finance, stories, news, weather, sports etc. The selected text corpus was further scrutinised to remove redundancy of words. Recording of the text corpus was done at studio in Jodhpur, Rajasthan. Speech corpora were collected for one female voices - a news reader at AIR. The voice artist is chosen after careful examination of the sample voices of the candidates. The data is collected using 16 bit PCM coding and 16 kHz sampling rate. Corpus consists of 3

hours of data which is approximately 1200 sentences. The text collected is being converted to ITRANS format and the speech wavefiles are being labelled with the help of volunteers. We have completed the labelling of two hour of data. A TTS for Rajasthani was built using a corpus of around 200 sentences. The building of TTS System using the newly recorded data is under progress.

School of Engineering:

School of Engineering has been involved in teaching of following courses that are common for all the branches: Engineering graphics, Manufacturing processes and Engineering thermodynamics. A well equipped workshop has become operational in the main campus at Kamand since March 2012. The school is in the process of developing Solid Mechanics and Thermo-fluids Laboratories. These labs are likely to be operational during August 2012 to November 2012.School of Engineering has got a total of eleven faculty members including three mentor professors. There are currently three PhD and two masters student in the school. The main areas of research are broadly classified in following categories: materials and design, thermo-fluids engineering, energy efficient systems and supply chain management. In materials and design, the work is directed towards development of materials for the sensor and actuator applications, development of the smart structures and systems. In thermo-fluids engineering, faculty members are involved in investigating radiative heat transfer, nano-scale heat transfer, flow analysis and heat transfer analysis of IC engines. Additionally, molten metals/alloys are also being explored. Energy efficient systems cover climate change studies, applications of phase change materials towards energy efficient buildings, use of non-conventional energy sources in IIT Mandi to enhance energy efficiency and development of energy park. The research in the area of Supply Chain Management involves design of green supply chains with carbon footprint considerations and design of humanitarian relief supply chains in India.

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Research Projects

IIT Mandi Seed grant projects

Project	Principal investigator	Project cost (in lac)
Active control of vibration using fuzzy logic controller for smart structure and its experimental validation	Rajeev Kumar	5,13,000

Progress report of the projects:

Active control of vibration using fuzzy logic controller for smart structure and its experimental validation

PI – Rajeev Kumar

The major objectives of this project has been to develop a finite element modeling of piezolaminated composite structure and to optimize the placement of piezoelectric sensors and actuators for use in the space and air craft industries. Based on the modeling a finite element program will be developed in MATLAB. Fuzzy logic controller will also be developed to control the vibration of smart structure which has optimum placed piezoelectric sensors and actuators. In the view of its practical importance, a numerical study will be performed to damp out the vibration of spacecraft antenna reflector (parabolic shell made of composite material). Thereafter, an experimental set up will be developed to validate the numerical simulation of the results. Attempts have been made to develop the finite element formulation to determine the nonlinear response of the general pizolamainated composite structure. In addition, fuzzy logic controller has been also developed to control the vibration of smart structure.

School of Basic Sciences

The school of Basic Sciences at IIT Mandi is a cluster of disciplines of Mathematics, Physics, Chemistry and Life sciences. The core of the school consists of 24 faculty having expertise in contemporary fields of research. The school started its Ph.D program in 2011 and presently 45 research students have enrolled to pursue research in various disciplines. The school aims to create an ambience for the smooth pursuit of scholarly activities in research and education to make an international impact. The school has also initiated Post-Doctoral and currently 03 Post-Doctoral fellows are working at this school. The faculty members of the school are closely working with the engineering colleagues on different research projects. The school has procured state-of-art equipment to pursue advanced research

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Research Projects

IIT Mandi Seed grant projects

Sr. No.	Project	Principal investigator	Project cost (in lac)
1	Nonlinear Delay and Functional Differential Equations with Applications	Syed Abbas	2,60,000
2	Photoabsorption Studies on Atomic Systems	Hari Varma	3,20,000
3	DNA aptamer conjugated gold nanoparticles for targeting cancer cells	Chayan K. Nandi	4,97,588
4	Photoinduced Electron Transfer in Organic moleculeInorganic Nanomaterial Hybrid Systems	Suman Kalyanpal	4,85,000
5	Development of Noble Metals containing Polyoxometalates for Structural Studies and Catalytic Applications	Pradeep C. Parameshwaran	5,00,000
6	Synthesis of Novel cyclophanes and its Application in the Synthesis of Transition Metal Complexes	P. C. Ravikumar	5,00,000
7	Exploration of swollen liquid crystal templates for structured nanomaterial synthesis	Prem Felix Siril	5,00,000
8	Modeling the Spread and Control of Epidemics with Reaction Diffusion Systems	Nitu Kumari	5,00,000
9	Higher Order Compact (HOC) finite difference scheme for Immersed Interface Problems	Rajendra K. Ray	5,00,000
10	Novel highly conjugated molecules: Design, synthesis, characterization, photophysical and theoretical studies	Subrata Ghosh	5,00,000
11	Novel highly conjugated molecules; design, synthesis, characterization photophysical and theoretical studies	Pradyumna K. Pathak	5,00,000
12	Structural and electronic structure studies of different transition metal oxides	Bindu Radhamany	5,00,000
13	Dynamical Analysis of Highly excited molecular spectra	Aniruddha Chakraborty	4,70,000
14	Design and analysis of Heuristic Search	Manoj Thakur	4,70,000

15	Study on microscopic origin of glass transition in biopolymers	Prasant P. Jose	5,00,000

Sponsored Projects

Sr. No.	Project	Principal investigator	Project cost (in lac)	Sponsoring agency
1	Chiral Metal – Organic Frameworks : Rational Synthesis, Characterization and Novel Applications	Rik Rani Konar	25,75,000	DST
2	Swollen liquid crystal soft templates for structured nanomaterial synthesis	Prem Felix Siril	20,00,000	DST

Progress report of the projects:

Study of nonlinear delay and functional differential equations with applications

PI - Syed Abbas

The major objective of this project has been to evaluate the dynamical behavior of delay/ functional differential equations and their applications in various field like neural networks and ecological modeling. An extensive literature survey has been carried out to monitor recent advancement in this field. Attempts have been made to analyze the concepts like existence, uniqueness and some qualitative behavior of the solutions. Efforts were made to establish the existence of pseudo almost automorphic solutions of integro - differential equations. Pseudo almost automorphic functions are very general then almost automorphic functions. Almost automorphic functions are generalization of almost periodic function. So the class of pseudo almost automorphic functions already contains almost periodic functions. This is a very nice concept generalizes the concept of periodicity and it has been found that it gives better approximate results than periodicity.

Applications of delay differential equations in the field of neural network modeling

was also attempted. A model of cellular neural network with delay was selected. After completion of the neural network work, we did a fundamental work, in which we applied the theory of Mawhin coincidence degree and matrix spectral theory to establish the existence of the periodic solution of more general delay model of N predator and M prey. Mawhin's coincidence degree theory has been applied extensively to study the existence of periodic solutions for nonlinear differential systems. The most important step of applying Mawhin's degree theory to nonlinear differential equations is to obtain the priori bounds of unknown solutions to the operator equation. We used this method to obtain our results. These studies suggest that the area of delay and functional differential equations are very vast and have excellent applications in many fields

Photoabsorption Studies on Atomic Systems

PI - Hari Varma R.

The project involves study of photoabsorption processes in atomic systems in order to understand effect of correlation, relativistic effects and confinement on ionization processes using theoretical many-body techniques such as Relativistic Random Phase Approximation (RRPA) and Relativistic Multichannel Quantum Defect Theory (RMQDT).

Photoionization of the krypton atom trapped in the center of a C60 molecule has been studied, well above the plasmon region, using Relativistic Random Phase Approximation and a simple model for the confining potential. The results reveal the importance of correlation (in the form of interchannel coupling), confinement and relativistic interactions in the determination of the matrix elements for the process. We have studied 4p, 4s, 3d and 3p subshells at various levels of truncation of the RRPA in order to identify the specific interchannel coupling(s) which are important in a given photoionization process. Confinement resonances were present in all cases, and correlation confinement resonances (CCR) were also found in some of the cases owing to interchannel coupling. Finally, photoelectron

angular distribution β parameters were calculated and it was found that the confinement resonances were rather less important for β parameters than for cross sections; this phenomenon was traced to the fact that β is essentially a ratio of matrix elements which partially cancels out the confinement oscillations. This should be generally true for photoelectron angular distributions resulting from photoionization of confined atoms.

We have also studied the importance of non-dipole interactions in the region of Cooper minimum which occurs at a low energy. This work was initiated with the recent report showing the importance of non-dipole interactions at low energies in Mg. We found that in Ca also, non-dipole interactions becomes significant in the region of Cooper minimum and brings deviation from the usual dipole angular distribution of photoelectrons at low energies. We also found that non-dipole effects gets accentuated in the presence of an external confining potential.

Photoionization processes which was initially thought as an instantaneous process with respect to the incident radiation. Recent developments in technology enabled experimentalists to measure the time-delay involved in the process which is happening in the attosecond scale. We have initiated studies in this direction as well. We studied the time-delay involved in the emission of photoelectrons from different 3s and 3p subshells of argon in the vicinity of Cooper minimum.

DNA aptamer conjugated gold nanoparticles for targeting cancer cells PI-Chayan Kanti Nandi

In this project we started to mainly focus on understanding the conformational fluctuations of ligand binding DNA aptamers and by attaching gold nanoparticles, how it can be used as biomolecular sensors.To begin with, using Thrombin-binding DNA aptamer (TBA, sequence 5'-GGTTGGTGTGGTTGG-3'), which binds specifically to the human α-thrombin protein and adopts G quadruplex form, we

found that it undergoes very complicated structural changes in the presence of different cations irrespective of their different charges and ionic strength. We observed an anti-parallel chair structure in the presence of K^+ and at high NH_4^+ ions while it changes to an antiparallel basket structure in the presence of Na^+ ion and low concentration of Ca^{2+} ion (Figure 1). Structural transition from antiparallel basket to parallel structure is observed only in presence of Ca^{2+} ion. Modulation of such folding topologies of TBA will be useful as potential applications in the therapeutic and drug discovery as TBA found to act as an anticoagulant by binding with blood coagulation thrombin protein

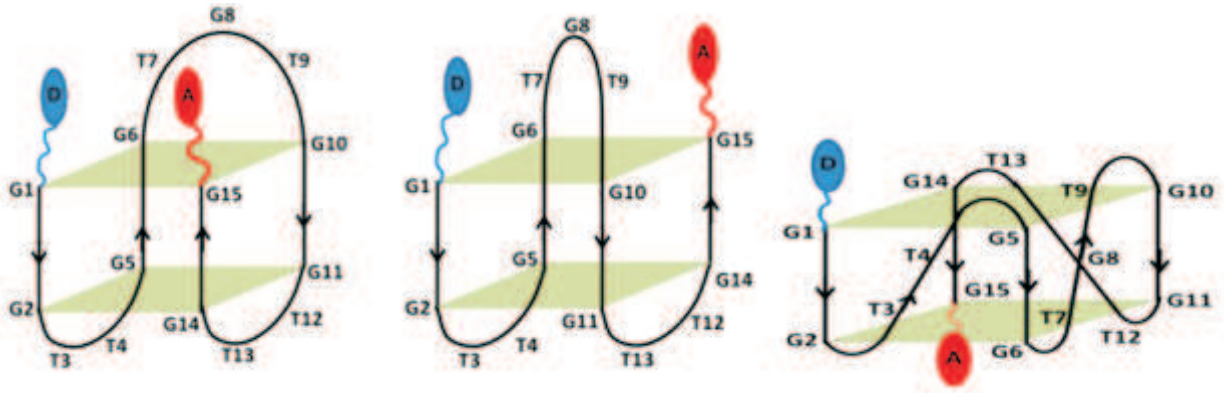


Figure 1: Antiparallel chair, basket and parallel structure of TBA in different cations

We plan to attach different shapes and size of gold nanoparticles, which have been already synthesized in the lab (Figure 2), with this aptamer and check the optical activities in presence of TBA aptamer, which in turn will be used in future as targeting cancer cells. We also plan to investigate how the TBA aptamer conformations can be usedfor protein sensing.

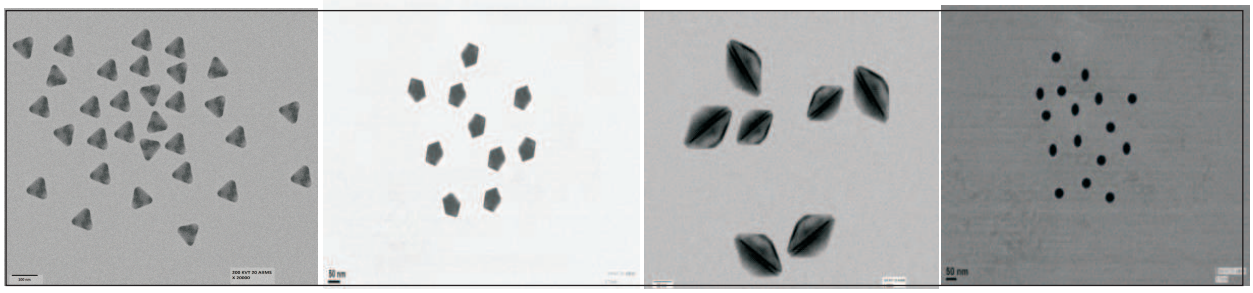


Figure 2: TEM images of synthesized different shapes gold nanoparticles

Photoinduced Electron Transfer in Organic moleculeInorganic Nanomaterial Hybrid Systems

PI - Suman Kalyan Pal

ZnO quantum dots (QDs) were synthesized in colloidal as well as powder form and characterized by using DLS (Dynamic Light Scattering) and UV-vis absorption techniques. Colloidal QDs were synthesized without any surfactant whereas during the synthesis of ZnO powder two types of surfactants Triathenolamine (TEA) and Thioglycerol were used. The size of the particles were estimated from absorption spectra and found that colloidal particles are smaller in size (~3.2 nm) than TEA and Thioglycerol coated particles. Visible emission was observed from the colloidal QDs. Organic dye Rhodamine B was chosen to study the photoinduced interactions with ZnO QDs. It was found that visible emission of ZnO QDs is quenched by Rhodamine dye. Results of steady state absorption and fluorescence measurements infer that Forster resonance energy transfer from ZnO QDs to dye may be responsible for observed quenching of QD fluorescence. Time-resolved fluorescence measurements are required for better understanding of the interactions between ZnO QDs and Rhodamine B. We are on the process of procurement of fluorescence lifetime measuring system which was granted for this project. Hope we will have it within next couple of months and be able to investigate ZnO QDs and Rhodamine B system there.

Development of Noble Metals containing Polyoxometalates for Structural Studies and Catalytic Applications

PI - Pradeep Parameswaran

Anionic metal oxide clusters called polyoxometalates (POMs), made up of early transition metals such as W, Mo, V, Nb and Ta, are well known for their interesting structural features and physical properties. Noble metals Pd, Pt, Au, Ru etc are rarely incorporated into such Polyoxometalates framework. Because of the relevance of noble metals in catalysis and device fabrication, the synthesis and

structural characterization of their polyoxometalate analogues will be a rewarding but challenging task. This project aims at developing noble metal oxide (Pd, Pt, Au etc) based nano-clusters for materials and catalytic applications. Noble metal containing POMs could act as good catalyst and can give more insight into the catalytic behavior of noble metals in general. So far only limited examples of such compounds are reported in the literature. Structural, supramolecular and catalytic activities of these new POM clusters will be analyzed in detail, which will give more insight into the properties of this class of rare compounds. Procurement and set-up of basic experimental facilities required for the project work have been carried out. Training of manpower in the synthesis and characterization of polyoxometalate compounds have also been done during this period and the work is currently in progress. Already some new compounds have been synthesized in this project, which are under various stages of characterization and testing currently.

Synthesis of Novel cyclophanes and its Application in the Synthesis of Transition Metal Complexes

PI - P. C. Ravikumar

Cyclophanes are cyclic organic molecules with at least one aromatic ring embedded as a part of the cyclic ring in other words any aromatic ring bridged by at least one aliphatic n-membered bridge with n equal to 2 or greater is termed as a cyclophane.. Cyclophanes are also called as supramolecules. One of the most characteristic feature of supramolecular chemistry is that it gives information about inter and intra molecular interactions. Cyclophane synthesis involves the closure of medium to large sized rings and is therefore always difficult because of competing polymerization reactions. We have proposed synthesis of novel cyclophanes using a NbCl5 based rearrangement and alkylation reaction sequence, which then can be used to develop new cyclophane based ligands for the synthesis of metal complexes. Procurement and set-up of basic experimental

facilities required for the project work have been done during the first six months of this project. Skillful handling of reactions is very important for the success of this project therefore much of our effort had gone into understanding some of the basic reaction pathways mentioned in this project. We have started getting good leads in this project since last two months; at the moment we have synthesized several compounds, which are under various stages of characterization and further elaboration.

Exploration of swollen liquid crystal templates for structured nanomaterial synthesis

Pl- Prem Felix Siril

Nanostructures of Pd nanowires and gold nanoparticles were achieved by chemical reduction of palladium salts and Au salts incorporated in SLC templates. Hydrazine vapour and hydrogen gas were used as reducing agents while sodium dodecyl sulfate (SDS) and Cetyltrimethylammoniumbromide (CTAB) were used as surfactants for forming the mesophases. The nanostructures were characterized by using UV-Visible spectroscopy and the morphology was studied using transmission electron microscopy.Nanostructured poyaniline (PANI) was prepared by using SLC as a soft, structure directing template. SLC was formed by a quaternary system containing Sodium dodecyl sulfate (SDS) as surfactant, 1-pentanol as co-surfactant, brine and cyclohexane as oil. Part of the oil phase was replaced by aniline and a number of compositions containing varying proportions of aniline in cyclohexane were used to make a series of SLCs containing aniline in the oil phase. Polymerization of aniline was achieved by adding ammonium persulphate (APS) to the SLCs. PANI was extracted from the mesophase and the PANI nanostructures were thoroughly characterized by UV-visible spectroscopy, FTIR, powder XRD, AFM and FESEM. PANI with different morphology such as nanofilms, spherical nanoparticles and nanowires were obtained under different conditions. The prepared nanostructured PANI materials

were tested for their Glucose sensing and the results were compared with bulk PANI. The prepared nanostructured PANI showed enhanced sensitivity and reduced response time when compared to bulk PANI.Nanostructured composite f Pd and PANi were prepared by mixing the SLCs containing aniline in the oil phase and Pd in the aqueous phase. The prepared nanostructures were characterized by using UV-Visible spectroscopy and TEM imaging. Further evaluation of the potential of these composites as sensing material an as catalysts for fuel cell reactions is being evaluated.

Modeling the Spread and Control of Epidemics with Reaction Diffusion Systems

Pl - Nitu Kumari

The study of infectious diseases has been and is anever fascinating area in mathematical biology. Many human epidemics have the potential to turn into pandemic causing large scale mortality. The spatial spread of epidemics isless well understood and much less studied than the temporal development and control of diseases and epidemics. The proposed research is being carried out, to understand the spatiotemporal dynamics of infectious diseases in the ecosystem, with the aim to control the disease or infection. Mathematical modeling is an effective and essential tool to quantify the spatiotemporalspread and to reveal the fundamental laws that determine the fate of epidemics.

Review of research and development in the proposed area has been completed. Literature survey on viral diseases and their spread in terrestrial and aquatic ecosystems including human population has been done. Data Collection is in progress with the help of RTBI, IIT Madras. Attempts are being made to develop a general model class for the transmission and spread of viral diseases within single and interacting populations.

Higher Order Compact (HOC) finite difference scheme for Immersed Interface Problems

PI - Rajendra Kumar Ray

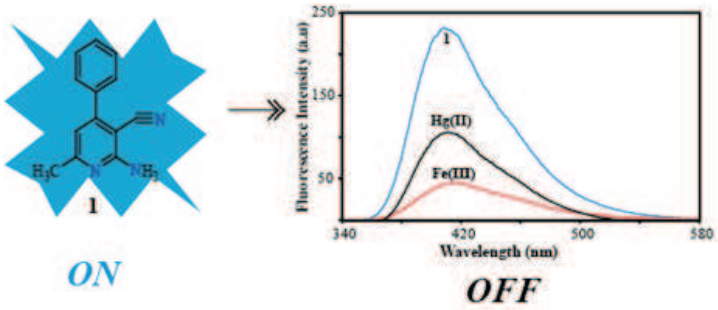
We are working on the development of higher order accurate numerical scheme to solve the interface problems. We are basically trying to club HOC methodology with special interface treatment for problems having discontinuities along the interfaces. This type of problems arises quite frequently in the field of science and engineering, which includes biochemical processing, solid mechanics, porous media flow, heat transfer, multiphase flow, mining and many others.

During the last one year most of the time was spent to collect and study different books, journal papers and other related documents to know about the recent developments in this given topic. Simultaneously, we have developed a new methodology for numerically solving Two-dimensional (2D) elliptic equations, where the equations have discontinuous coefficients and singular source terms along circular interfaces. This higher order compact formulation is at least fourth order accurate for the points far from the points of discontinuities (termed regular points) and at least second order accurate at points just next to the discontinuity (termed irregular points). For numerical validation of the scheme, we consider two standard problems; first one is a second order partial differential equation having singular source term along the circular interface and the second one is a seconder order partial differential equation having both discontinuous coefficient and singular source terms along the circular interface. In both the cases we have got satisfactory results. We are going to submit our outcomes in a reputed International conference for possible publication. Still, there are some scopes of improvements in the interface treatment and we are working on that aspect.

Novel highly conjugated molecules: Design, synthesis, characterization, photophysical and theoretical studies

PI - Subrata Ghosh

Initially we started working on developing small molecule-based fluorescence chemosensors to detect selectively biologically/environmentally important metal ions. To this direction, we have developed 2-aminopyridine based chemosensor which can detect selectively Hg^{2+}/Fe^{3+}. 2-Amino-6-methyl-4-phenyl-nicotinonitrile 1, a 2-aminopyridine-based fluorescent compound, was found to be a fluorescent chemosensor for the detection of Fe^{3+} and Hg^{2+} ions over a number of other metal ions. Compound 1 was synthesized in one step using a multicomponent reaction, and characterized using common spectroscopic tools. During Fe^{3+}/Hg^{2+} sensing the compound 1 followed a 'switch-off' mechanism. Further, compound 1 could sense Fe^{3+} over Hg^{2+} by its distinct absorption and fluorescence quenching behaviors. 1:1 complex formation of 1 with Fe^{3+} and Hg^{2+} was clearly understood from Job's plot. The present work brings additional evidence on the importance of multicomponent reactions which could lead to the development of fluorescence chemosensor in one step for the selective detection of biologically important metal ions.



The work was published in reputed international journal 'Tetrahedron Letters". 2-Aminopyridine derivative as fluorescence 'On-Off' molecular switch for selective detection of Fe^{3+}/Hg^{2+}. Rik Rani Koner, Sougata Sinha, Sunil Kumar, Chayan K. Nandi, Subrata Ghosh. Tetrahedron Letters, 2012, 53, 2302-2307.

Currently we are involved in developing novel materials at molecular levels which can be used to detect selectively metal ions at nanolevel.

Cavity quantum electrodynamics in solidstate systems"

PI – Pradyumna Pathak

Quantum optics and Quantum information science has made a significant of progress during the last decade. Various systems have been designed for implementation of quantum information processing and coherent lightmatter interaction between single atoms and single photons, including the most successful systems such as cavity quantum electrodynamics and trapped ions. However, a major drawback of these systems is that they can not be easily scaled up to the architecture of a quantum processor and the experiment time is limited by the trapping time of atoms or ions. Recently, solid state systems like quantum dots embedded in photonic crystals, circuit quantum electrodynamics (circuitQED), Nitrogen vacancy (NV) centre in diamond, has emerged as another successful systems for quantum optics. With ongoing technological advancement it might be possible to fabricate large number of qubits required for a quantum processor on a single microchip in near future. Clearly this is an important milestone for the purposes of scalable quantum information processing. In this project, we plan to explore solid state systems such as quantum dots placed inside photonic microcavities, circuitQED, and NVcenters. Both optical and solid state techniques will be used to these systems to bring out new physics and potential applications in emerging fields such as quantum information science.

Procurement of work stations, required for the study is in progress. Literature survey has been done to developed techniques and methods required to work on the project. Currently, we are working on a couple of interesting problems and we got a few exciting results on two photon resonant process in a single quantum dot coupled with photonic crystal cavity, which we will be communicating in international journals of repute in coming months.

Structural and electronic structure studies of different transition metal oxides

PI - Bindu Radhamany

During this period, we were in the process of setting up the laboratory and procuring various items. One of my students was sent to Tata Institute of Fundamental Research, Mumbai for the sample preparation of La_0.2 Sr_0.8MnO_3. There are many open questions related with basic physics on this material. This compound shows interesting structural, electronic and magnetic properties. Our main aim is to understand the fundamental origin of their properties using various techniques like x-ray diffraction, x-ray absorption and photoemission spectroscopies. Inspired by our earlier work, we got a beamtime at European Synchrotron Research facility, Grenoble for carrying out very high resolution x-ray diffraction work. The results of this work have been communicated to Phys. Rev. B in the category of rapid communications. We have also carried out Inverse photoemission spectroscopy measurements at UGC-DAE, CSR, Indore. The results of it will be communicated soon.

Currently we are in the process of setting up high temperature furnace which can be used for sample preparation. We have also set up collaboration with Oxford University to work on bilayered manganites. Setting up of temperature dependent x-ray diffraction lab, vacuum furnace, preparation of various functional materials, carrying out PES studies on bilayered manganites etc. is in progress.

Dynamical Analysis of Highly excited molecular spectra

PI - Aniruddha Chakraborty

Understanding dynamics of highly excited vibrational motion of small molecules is one of the most important challenges in this area. The aim of this research is to extract new understanding about dynamics from information present in the experimental spectra and to apply this knowledge to understand internal molecular energy flow and reaction

dynamics. In highly excited vibrational states of molecules, strong mode coupling and anharmonicity give rise to complicated classical dynamics, making the simple normal mode analysis unsatisfactory. Traditional methods for analyzing the spectrum are based on assignment of eigenstates in terms of quantum numbers (zero order), such as number of quanta in each normal mode, which can be physically meaningful only at low energy, near harmonic regime. In highly excited vibrational spectra these zero order quantum numbers are destroyed by the strongly coupled dynamics, which means the spectra become un-assignable in ordinary terms. Effective spectroscopic Hamiltonians are very useful to analyze and extract informations from experimental and simulated spectra. We are using our methods to interpret experiments that probe molecules via the high resolution frequency-domain spectra. We plan to construct a generalized effective spectroscopic Hamiltonian by fitting the spectrum of real an-harmonic systems using simulated data.

The standard approach for building an effective spectroscopic Hamiltonian is well understood for systems below the dissociation energy of any bond. We plan to extend our method to energies above the dissociation energy of any bond. This is non-trivial because one has to incorporate the effect of energy continuum into the energy levels, which is one of the key challenges in this area.

Design and analysis of Heuristic Search Techniques for Global Optimization
Pl - Manoj Thakur

Many real life problems can be modeled as nonlinear optimization problems involving one or more decision variables. The problem of locating the global minimum/maximum of a multimodal function come across in many fields such as Mechanical, Electrical, Aerospace engineering etc. Moreover many optimization problems in science and engineering involve constraints also. In the presence of constraints search space of the problem reduces and finding the optimal solution becomes difficult. We are working on the development of efficient, accurate and reliable heuristic techniques to find the global optimal solution of the constrained

and multi-objective nonlinear optimization problems. Review of the research work in the area of global optimization is in progress.Literature survey of heuristic search techniques for global optimization is being carried out.

Study on microscopic origin of glass transition in biopolymers

PI - Prasanth P. Jose

The aim of this project is to look into microscopic mechanism of glass transition found in bio-polymers such as proteins, DNA, RNA etc.. We have identified the protein lysozym as representative bio-polymer to initiate the study. This protein has been extensively used for computational studies of glass transition in bio-polymers. As this is a highly active research area we have conducted extensive literature survey to monitor current progress. Two parts of the project are first generate long time MD simulation trajectory and second is the analysis of the data. The first part involves purchase of both hardware, software and appointing of graduate as well as undergraduate students in the project. We have started procurement procedure for acquiring hardware and software required for the simulation studies. Preliminary simulations have been done using existing facilities. Recruitment of under graduate and graduate students required for the study is in progress.

Chiral Metal – Organic Frameworks : Rational Synthesis, Characterization and Novel Applications

PI - Rik Rani Konor

The syntheses of Metal–organic framework, which have the ability to encapsulate substrates, have been receiving growing attention in supramolecular chemistry due to their numerous applications such as reaction container with catalysis by offering high concentration of reactant inside the confined space, gas storage, molecular recognition and to more advanced technological applications as chemical sensors, electrodes, data imaging and storage materials, and even

lasers. The present study was aimed at to synthesis new enantiomerically pure amino acid derived amide-based hybrid chiralorganic molecule having a carboxylic group at one end and N-containing heterocycle particularly pyridyl or azole group at the other end which might serve the dual function of forming oxo-bridged trinuclear redox active metal carboxylate units using carboxyl group and linking these trimers into two- or three-dimensional metalamide based organic frameworks by pyridyl or azole group.

Procurement of chemicals and equipment required for the study was started. A novel fluorescence chemosensor has been prepared by utilization of a 2-aminopyridine derivative, 2-amino-6-methyl-4-phenyl-nicotinonitrile, as fluorescence chemosensor for selective detection of Fe3+/Hg2+over a large number of other cations. The probe was synthesized in one step using a multicomponent condensation reaction, and characterized using common spectroscopic tools like IR and NMR spectroscopy. The sensor followed a 'switch-off' mechanism, and efficiently distinguished Fe3+over Hg2+

Swollen liquid crystal soft templates for structured nanomaterial synthesis

PI – Prem Felix Siril

Nanomaterials have remarkably different physical and chemical properties (optical, electronic, magnetic, catalytic etc.) when compared to their bulk counterparts and these properties are strongly size and shape dependent. Despite intensive studies, controlling the size, shape and microstructure of nanomaterials is still a scientific and technological challenge. Structured nanomaterial synthesis often involves the use of structure directing templates. 'Hard templates'like mesoporous silicas are difficult to remove. On the other hand, mesophases resulting from surfactant self assembly are a class of useful and versatile templates for structured nanomaterial synthesis. These mesophases can be utilized for synthesizing one-dimensional (1D), two-dimensional (2D) and three-dimensional (3D) nanostructures in relatively large

quantities depending upon the addition of reagent and/or chemical reactions proceeding within. Moreover, nanomaterials synthesized within such soft templates can be easily extracted via solvent addition and centrifugation, contrary to the hard template synthesis techniques which involves the addition of corrosive chemicals like hydrofluoric acid. It has been demonstrated that giant hexagonal mesophases made by a quaternary mixture of water, surfactant, oil and a co-surfactant can be used as nanoreactors to synthesize a wide variety of novel nanostructured materials of noble metals, polymers and their composites. These mesophases are called swollen liquid crystals (SLCs) as the diameter of infinite cylinders formed by a monolayer of surfactant can be swelled over a wide range from 3-30 nm. The distance between the surfactant cylinders can be varied via aqueous swelling. Apart from these mesophasic systems can also be used for preparing nanocrystals of organic materials such as pharmaceutical compounds and energetic materials. During the first year of implementation of this project as per the objectives SLCs have been employed to synthesize a variety of new and original nanomaterials such as metallic, polymeric, composites and organic nanocrystals. The effort has been done to explore the fundamental aspects of formation of such nanostructures and also to gain insight into their properties. Moreover, metal polymer composites have also been synthesized and their application in glucose sensing has been studied.

Pd nanostructures were synthesized by reducing the mesophases containing palladium precursors using two different reducing agents. In case of esophases containing Pd(OAc)2& Pd(AcAc)2 the Pd nanostructures were synthesized by exposing the mesophase to hydrazine monohydrate (N2H4.H2O) vapours. Nanostructures of noble metals (Pd & Au), conducting polymer (PANI),conducting polymer-metal composite (Au-PANI & Pd-PANI) and energetic compounds (RDX) were prepared as proposed in the proposal and these nanostructures were thoroughly characterised. PANI nanostructures showed very good potential for biosensing applications.

School of Humanities and Social Sciences:

The role and function of the humanist disciplines in the undergraduate engineering curriculum of the IITs has been universally recognized as an indispensable component. In assisting the potential technologist to attain the twin goals of individual excellence and happy harmony with society, the humanist disciplines need to be configured to meet immediate, practical, professional requirements without losing sight of the overriding claims of all-round liberal education.

The program of the School of Humanities & Social Sciences at the IIT Mandi has to achieve a thorough amalgam of the functional and liberal paradigm over the last academic year (2011-2012). Through a careful recruitment program, it has secured in the last year the services of a youthful, talented crop of faculty members in the areas of English Studies, German Studies, China Studies, Economics, History, Psychology, Philosophy and Sociology. In addition, a pool of visiting experts sourced from other educational institutions aids the School ably in its teaching program, especially in the Fine Arts and Management Studies.

The credit requirements of the School for the B.Tech curriculum have been fixed at eighteen credits. Out of these, thirteen credits have to be secured by opting for one course each from five distinct streams comprising a common core, namely: a) the Creative Stream b) International Language Competence c) Communicative Competence d) Social Competence and e) Managerial Competence. The remaining credits can be had from a pool of courses promoting advanced study of individual subjects. Besides, as propedeutic, a course in Professional English is offered to students not well up in the language.In the academic year 2011-2012 the School has organized successfully one-credit workshops for the B.Tech students in the areas of Financial Accounting and Organizational Management with the help of faculty from the Department of Management Studies, IIT Delhi.

The School invited Professor Dr. Thomas Riis, Distinguished Professor of Local History, University of Kiel, Germany, for the first Humanities General Lecture Series on 25.4.2012 on the subject of the "Social Risks of Rising Poverty". On the following day, a workshop was organized on "The Sense of the Local", with Professor Riis and experts from Himachal Pradesh University, Simla addressing the School as well as invitees from colleges in Mandi district. For these two programs, the School received generous help from the New Delhi Office of the German Science Foundation (DFG).

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COLLOQUIUM / INVITED LECTURES

Eminent academicians, scholars, scientists, industry leaders and policy makers were invited to share their experience with the students and faculty and deliver lectures on the subject of their expertise.

1 JSS Bilaspur: The Road Less Travelled By: Prof. Shormishtha Panja, Professor of English, University of Delhi, April 01, 2011.

2 The Outward Bound: From Few to Many "Emergent cooperative behaviour from interaction": Prof. Arghya Taraphder, IIT Kharagpur, April 04, 2011.

3 Ion-matter interaction and applications: Prof. Bhas, Physical Research Laboratory, Ahmadabad, April 05, 2011.

4 X-ray Scattering and X-ray Spectroscopic Studies on Bio-inspired Hierarchical Functional Materials and Metal Oxide Nanomaterials: Dr. Venkata Krishnan, National Institute of Materials Science (NIMS), Tsukuba, Japan, April 06, 2011.

5 MiRNA: The "Litte Master" of gene regulation: Dr. Ravi Shanker, Scientist, Department of Studio of Computational Biology & Bioinformatics (SCBB), Institute of Himalayan Bio-resource Technology, CSIR, PalampurApril 08, 2011.

6 Stories of a Lifetime: New Media and Orality: Dr. Rajyashree Khushu-Lahiri,Assistant Professor of English in the Department of Humanities and Social Sciences, Indian Institute of Technology Roorkee, April 09, 2011.

7 Integer Quantum Hall Effect in Trilayer Graphene Under High Magnetic Field: Dr. Amit, Alexander von Humboldt fellow at

Department of Physics, University of Regensburg, Germany,April 11, 2011.

8 Technopreneur Promotion Programme - a novel support mechanism to tap the innovative potential of an entrepreneur: Dr. R. K. Sud, Scientist, Institute of Himalayan Bio-resource Technology, CSIR, Palampur.April 13, 2011.

9 Applying Human Factors in Engineering: Prof. Paul Milgram, Professor in the Mechanical and Industrial Engineering Department at the University of Toronto, April 15, 2011.

10 Coordination of Robotic Vehicles for Aerial and Marine Applications: P. B. Sujit, Research Scientist in the Department of Electrical and Computer Engineering, University of Porto, Portugal, April 20, 2011

11 Easy Ways for A Healthy / Stress Free Life: Mrs. Chellammal Natarajan, MSc in Chemistry and actively practicing Pranic Healing, Vedic healing, Astrology and Welfare Activities,April 28, 2011.

12 The case of the Missing Masala, or the Case for the Humanities: Professor B. Subramanian, Visiting Professor, SHSS, IIT Mandi, June 02, 2011.

13 Multipath Routing: Prof. Tricha Anjali, Associate Professor, Electrical and Computer Engineering, Illinois Institute of Technology, Chicago,June 06, 2011.

14 Mobile Communication and WiMax (A convergence of communications and computers): Prof. Vishwanath Sinha, Distinguished Professor and Adviser at the LNM Institute of Information Technology, Jaipur, June 17, 2011.

15 Possibilities of Research & Innovation Cooperation with Europe: Indraneel GHOSE, Delegation of the European UnionJune 17, 2011.

16 Seabuckthorn – A panacea for modern day health disorders: Dr. R. C. Sawhney, Registrar, IIT Mandi, Aug 18, 2011.

17 Research issues on medicinal and aromatic plants in India: Dr. P. S. Ahuja, Director, IHBT Palampur, Sept. 05, 2011.

18 A Wavelet Approach for Time Series Prediction: Dr. Sarita Azad, Visiting Assistant Professor, IIT Mandi Sept. 06, 2011.

19 A Perspective on Information Retrieval and Pattern Discovery: Dr. Sukumar Bhattacharya, Visiting Associate Professor, SCEE, IIT Mandi, Sept. 20, 2011.

20 Music & Dance Heritage of Himachal: Prof. Vijay Stokes, Formerly Professor at the Indian Institute of Technology, Kanpur Sept. 23, 2011.

21 Use of IPRs by Science & Technology Faculty/Students: Prof. Sudhir K. Jain, IIT Delhi, Nov. 11, 2011.

22 Biometrics-based Human Recognition: An Overview: Dr. Harsha Wabgaonkar,

23 Accenture, India, Nov. 14, 2011.

24 Network Topology from Response Dynamics: Ms. Lishma Anand, Head Counselor, IIT Mandi, Nov. 16, 2011.

25 Deep Fiber Access: PON Evolution Overview: Dr. Anand Srivastava, Visitign Professor, SCEE, IIT Mandi Alcatel, Delhi, Nov. 25, 2011.

26 Engineering Vision for Hydropower Development in India: Er. Pavan Kumar Kohli, HPPCL, Sundernagar, Dec. 02, 2011.

27 Energy Growth Rate in Fermi Accelerators: Kushal Shah, Assistant Professor, JNU Delhi, Jan. 19, 2011.

28 Embedded assistive devices for visually challenged: Prof. P.V.M. Rao, Professor, IIT Delhi, March 1, 2012.

29 Design, Construction, and Evaluation of new High Resolution Medical Imaging Detector/System: Amit Jain, University of Buffalo, March 28, 2012.

Books/Book Chapters Published

1 Trapti Jain - "Available Transfer Capability in Electricity Markets", Lambert Academic Publishing Ltd., Germany, ISBN-978-3-8473-7080-2, 2012

2 Varma H. R. and Deshmukh P. C. - Photoabsorption processes in some free and confined atomic systems: Effects of Correlation, Relativistic Interactions and Confinement. In Lambert Academic Publishing, Germany, 2011.

3 Parameswaran P., 'Chiral Amino Alcohol based Schiff base Complexes: Syntheses, Structures and Properties', LAMBERT Academic Publishing, Germany, ISBN 978-3-8465-8157-5, 2012.

4 Rajpurohit B. S., Singh S. N. and Lingfeng Wang "Electric Grid Connections and System Operational Aspects of Wind Power Generation" in a book entitled "Wind Energy Conversion System: Technology and Trend" Berlin: Springer-Verlag, pp. 267-293, Ed. S. M. Muyeen, Jan. 2012.

5 Manu V. Devadevan – Matte Matte Blake (in Kannada), Aharnishi, Shimoga, 2012. Books Review & Edited Publications

6 Chakraborty A. -Introductory Statistical Thermodynamics (Authors: Nils Dalarsson, Mariana Dalarsson & Leonardo Golubovic), Contemporary Physics, 53, 176, 2012

7 Chakraborty A. -Relativistic Quantum Physics: From Advanced Quantum Mechanics to Introductory Quantum Field Theory (Author: Tommy Ohlsson), Contemporary Physics, 2012 .

8 Subramaniam B., - Indien im Spiegel der deutschen Dichtung. Vol.17, Proceedings of the International Association for German Studies. Warsaw Congress 2010, Frankfurt a.M./New York (Peter Lang), 2012

Papers Published

1 Abbas S., Sen M., Banerjee M., Almost periodic solutions of non-autonomous model of phytoplankton allelopathy, Nonlinear Dynamics, Volume 67, Number 1, 203-214, 2012.

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Conferences attended, papers presented and invited talks

1 Dwivedi A., Qu W. and Randall C. A. Presented Paper "Unusual phase transition behavior in rhombohedral region of ternary $xBi(Mg_{1/2}Ti_{1/2})O_3$-$yBi(Zn_{1/2}Ti_{1/2})O_3$-$zPbTiO_3$ ferroelectric system0" in Electronic Materials and Applications - 2012 conference organized by American Ceramic Society in Orlando-Florida, January 18-20, 2012.

2 Ashok Kumar M., 'Religious Celebrations: Terrains of Protest and Contestation for Social Status in India' presented at the International

Conference on Religion and Spirituality in Society held in Robson Square, University of British Columbia, Vancouver, Canada from 20-22 February 2012.

3 Rajpurohit B.S. and Pindoriya N.M., "Grid Integration of Large Scale Wind Power," 7th national conference on Indian energy sector – Synergy with Energy and exhibition–INDIAN ENERGY SHOW 2011, Ahmedabad, Gujarat, Nov. 18-19, 2011.

4 Abhishek N. V., Mathur S., Bhuvaneshwari S. and Rajpurohit B.S., "Experience of Virtual Education at IIT Mandi: Perspective of Users," International Convention on 'Virtual Education: Issues, Challenges and Prospect' New Delhi,Feb. 24-25, 2012,.

5 Nandi C. K., Chaudhury A., (2012): "Conformational dependent fluorophore nucleotide interactions in DNA aptamer in Forster Resonance Energy transfer based approach" IXth Spectroscopy and Dynamics of Molecular Clusters (SDMC-2012), IISC Bangaluru, India, Feb 16th -19th, P. 33, 2012..

6 Nandi C. K. "National Fluorescence Workshop: Spectroscopy and Microscopy in Biology and Chemistry" (FCS 2011)" Held at IIT Delhi and JNU University Delhi, Nov 14-18th 2011.

7 Sawhney R. C. "Seabuckthorn for protection against high altitude stress" 5th International Seabuckthorn Association Conference Xining, China September 3-8, 2011.

8 Genemala H.,6thSymposium on National Frontiers of Engineering, IIT Hyderabad September 2-3, 2011,.

9 Parameswaran P. gave an invited lecture on "Hybrid

Polyoxometalates: Merging Organic and Inorganic Domains for Materials and Catalytic Applications" at the Faculty Development Program titled 'Current Trends in Organometallic Chemistry' organized by the Department of Chemistry, National Institute of Technology, Calicut. 4 - 8th July, 2011.

10 Dutt S. and Siril P. F. - "Synthesis and characterization of polymer nanostructures using swollen liquid crystal templates", International Conference on Frontiers in Nano-science and Technology and their Applications, NanoSciTech-2012, Punjab University, Chandigarh, February 15-18, 2012.

11 Ray R. K. – 'New findings on α-β Phenomena for Unsteady Flow Past an Impulsively Started Circular Cylinder' in IUTAM Symposium on Bluff Body Flows (Blubof2011), at IIT Kanpur, on December 12-16, 2011.

12 Pathak S. K. (2012)Information Professionals Summit (LIPS) on LEAP (Leadership, Ethics, Accountability and Professionalism) in Library Services organized by SLP in association with Institute of Economic Growth (New Delhi), Ambedkar University (New Delhi) and SLA Asian chapter "on March 16-17, 2012.

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14 Pathak S. K. (2011). - Collection development in a new academic library: a case study at the conference on 'Strategies for Managing Libraries in the Future' during jointly organized by IIM Ahmedabad and INFLIBNET Centre, Ahmedabad to be held at IIM Ahmedabad,

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17 Jain T. and Jain A. - "Implementation of artificial neural networks in real time power systems: Challenges and Issues", 5th Indian International Conference on Artificial Intelligence (IICAI-11) organized in Tumkur, India during December 14-16, 2011.

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19 Sao A. K. and Yegnanarayana B., paper titled "Laplacian of smoothed images for face recognition," WIFS, Iguacu Falls, Brazil, November 29, 2011 – December 2, 2011.

Workshops/ Conferences Organized

1 Singh B., Nandi C. K. & Jain T. - Short-term course on "Integrating Renewable Energy Sources into Emerging Electric Power Systems at IIT Mandi, May 16-20, 2011.

2 Singh B. - Workshop on "Microcontrollers and its Applications to

Electrical Engineering" at IIT Mandi on 13/10/11.

3 Parameswaran P., Nandi C. K. & Deshmukh P.C.- 'First in-house symposium on Inter-disciplinary research and development' was organised by IIT Mandi on May 7, 2011.

Professional achievements

1 Subramaniam B. - Re-elected as Vice-President, Goethe Society of India, at the AGM held at New Delhi on January 17, 2012.

2 Pathak S.K. - Selected as a member of the Advisory Board of Special Library Association USA (Asian Chapter).

3 Pathak S.K. - Selected as Chairperson, Web portal Management Committee, Special Library Association USA (Asian Chapter).

Membership of Professional Associations

1 Pathak S.K. - Society for Information Science, Chennai.
2 Pathak S.K. - Special Library Association, USA.
3 Pathak S.K. - Young Library Association, Bhopal.

Visit to Academic/ Industrial Organizations

1 Ray R. K. – Represented IIT Mandi in the annual Dean's (student) meeting at IIT Kharagpur on December 17, 2011.

2 Abbas S. - Visited Prof. Siegmund of TU Dresden as a Guest Scientist from Jan4, 2012-Jan11, 2012.

3 Genemala H - Visited Texas Instruments, Bangalore on the development of the course Analog System Design Lab during Dec 7, 2011 - Dec 9, 2011 and March 26, 2012- April 2, 2012.

4 Kumari N. – Visited University of Connecticut, USA in December, 2011.

5 Ravikumar P. C.– Visited Indian Institute of Science, Bangalore along with his student Vivek K Mishra in January 2012 for doing collaborative research work in IISc Bangalore.

6 Pal S. K. – Lab Visited : (i) Moser Baer India Ltd.,66, Udyog VIhar, Kasana Road, Greater Noida, 22nd February, 2012. (ii) Centre for Development of Physics Education (CDPE), University of Rajasthan, Jaipur, March 9-10, 2012.

7 Nandi C. K. -Visiting Guest Scientist from December 1-31, 2011 to Prof. Philip Tinnefeld in Technische Universitat Braunschweig Germany for Collaborative research on "Single Molecule Forster Resonance Energy Transfer of DNA aptamer"

Outreach activities

1 Subramanian B. - Delivered the inaugural lectures of the Training Progrmme at the Academic Staff College, Jawaharlal Nehru University New Delhi in November 2011.

2 Subramanian B. - Conducted a short-term course on Post-War German Literature, Dept of Foreign Languages, Doon University Dehradun in January 2012.

3 Subramanian B. - Delivered the University Address on 'What is European Modernity?' at the Doon University Dehradun in January 2012.

4 Parameswaran P. and Nandi C. K. participated as Jury Members in a tate-level "Inspire Science model exhibition-2011" held at Beas/VipashaSadan, Bhuili, Mandi from 13-15 July, 2011.

5 Parameswaran P., Nandi C. K. and Pal S. K. participated as Jury Members in a district-level "Inspire Science model exhibition, 2011" held at Beas/VipashaSadan, Bhuili, Mandi from 28-30th June, 2011.

6 Khemani D., Parameswaran P. and Nandi C. K. participated as Chief Guests as well as Jury Members in District Level 'Children's Science Congress 2011' held at Govt. Sr. Sec School, Gohar, Mandi Distt on November 1, 2011.

7 Parameswaran P. and Nandi C. K. participated in a 'Brainstorming Session' organized by 'State Council for Science, Technology and Environment, HP' in collaboration with IISER, Mohali at Hotel Holiday Home, in connection with the establishment of 'Centre for Science Learning and Creativity' in Shimla Himachal Pradesh, 4th April 2011.

MEMORANDUM OF UNDERSTANDING

To promote academic research, co-operation and development of technical education the following MOUs have been signed during the year 2011-2012.

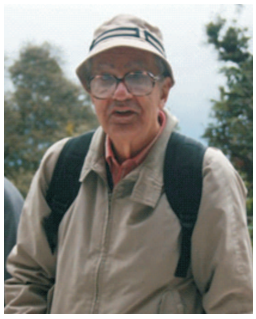
1. Indian Institute of Technology Madras, Chennai – MoU signed for academic and research collaboration in the area of mutual interest and exchange of faculty and students

2. University of Stuttgart TU9 Germany (Represented by Prof. Dr. Wolfram Ressel, Rector, University of Stuttgart) - collaboration in academic research and teaching, and exchange of faculty and students

3. Institute of Himalayan Bioresource Technology (Council of Scientific and Industrial Research), Palampur, Himachal Pradesh - Collaboration in the area of Biotechnology, Chemical Sciences, Bioinformatics, Chemical Engineering, Food Sciences, agriculture and any other area of mutual interest. The scope of MoU also include sharing of Analytical facilities and library on preferential terms.

VISITORS AT IIT MANDI

Prof. Vojislav Radojevic



Prof. Vojislav Radojevic, Emeritus Professor from Institute of Physics, Belgradevisited IIT Mandi during January-April 2012. During his visit, he worked with the atomic and molecular physics group of the institute. Investigations on many-body effects on atomic processes has been considered using successful many-body techniques such as Multi-configuration Tamm-Dancoff (MCTD). MCTD is applied to the photo detachment studies on negative Cu ions to understand the core correlation effects. Several other applications of MCTD on atomic processes have also been initiated and these work are under progress. Apart from the research work, Prof. Radojevic also offered a graduate level course on electrodynamics in the School of Basic Sciences.

Dr. Yvonne Dittrich

Dr. Yvonne Dittrich, Associate Professor, IT University, Copenhagen taught a course on Software Engineering (SE) to IIT, Mandi and ITU students in the odd semester, 2011. Prof. Dittrich's contribution through the course was unique as it was first time that students at IIT, Mandi and ITU were being taught the same course from Copenhagen using the National Knowledge Network (NKN) facility. The course also involved a semester-long project, where multinational teams consisting of IIT, Mandi and ITU students worked on real-world SE case studies. For making teaching more effective, Prof. Dittrich visited IIT, Mandi for a month in October, 2011.

Dr. Vic Hayes

Dr. Vic Hayes, popularly known as the father of Wi-Fi, was invited at IIT Mandi on 11th & 12th February, 2012. He enlightened the audience about the current scenario of wireless technology. He also presented various ideas and suggested that Wi-Fi could act as a blessing for the people in Himachal and could really boost up the progress of the state.

Dr. Richard Stallman

Dr. Richard Stallman developer of free software like Linux was at IIT Mandi on 11th & 12th February, 2012. He gave a talk which was centered around the notion of "free software". The benefits and necessity of free software and the increase in mutual cooperation and trust leading from them were the apex topics of his discussion. He also made the audience aware about the very famous Free Software Movement which he had initialized and has since been growing immensely in popularity.

Mr. Susant Pattnaik

Susant Pattnaik, a 18 year old Young Inventor, Social Entrepreneur, Tech Entrepreneur from Odisha who has invented many technologies which are beneficial to the society. He visited IIT Mandi on 12th February and demonstrated his work in the field of electronics. He showcased a collection of gadgets to explain his self-proclaimed "Sixth-Sense" technology

AWARDS & ACHIEVEMENTS

Dr. Sarita Azad, School of Basic Sciences, has been awarded the President's Award for Excellence, 2011 at the Institute for Defence Studies and Analyses (IDSA), New Delhi. The award was conferred on her by Honourable Defence Minister Shri A.K. Anthony. The news was also covered by various national print media.

International Journal of Chemical Engineering

Dr. Pradeep Parameswaran has been selected as one of the guest editors for a special issue on Nano catalysis of the International Journal of Chemical Engineering. The main focus of this special issue is to address the recent development in the synthesis, catalytic applications, and engineering aspects of nanoparticles, nanocomposites, and nanoporous materials and to address the importance of nano pore-sized materials in catalysis

IIT Mandi Scholar in News

Hot springs will soon become a brave new hope for the Rs 3,000-crore ageing apple industry. Vijay Chauhan, an MS student at IIT Mandi, is on his way to develop apple cold stores and fruit processing units using this cheap sustainable source. This cutting edge research has attracted none other than the country's great missile scientist and the former President Dr APJ Abdul Kalam while he was interacting with young researchers. Dr Kalam praised Vijay's research and said using such a sustainable source would empower the rural enterprise and be a

hallmark for the 21st century rural development of the nation". His research has so far established that the hot springs in Manikaran, only used by pilgrims, can provide cold store capacity of 1,000 tonnes and generate 30-KV of power. This power can be used to run a processing plant with a capacity of 30 tonnes. It is like the one being run by the HPMC at Jarol in Mandi

NEW INITIATIVES

Execoms:

Traditionally in IITs, Deans and Heads are appointed to take executive responsibility for various functions and to guide policy-making in those areas. Deans are selected from among the Professors, or very occasionally from the Associate Professors. With a large pool of Professors, it is possible to find individuals who are eager to serve and have the relevant administrative expertise and knowledge of the Institutional culture and goals.

In IIT Mandi, the number of senior faculty is much less than the desired number of Deans and Heads. Many of the senior faculty are here for a short time, typically 1 year, and would rather concentrate on teaching or research or mentoring young faculty. Of course, they are dedicated to the growth of the Institute and take up the role of Dean/Headship when requested. They are often loaded with multiple such roles at the same time. They may leave IIT after stepping down, affecting continuity.

Many of the young faculty have shown eagerness and ability to take up administrative responsibility to build up the Institute. A modest amount of administrative experience will foster their professional growth. However, to elevate one of them to Dean/Head is undesirable as it will stunt their professional growth in research and teaching.

The solution is to share the responsibility among several young faculty in a committee of peers. Policy-making and execution are distinct activities. Hence, IIT Mandi has started with a new initiative, wherein a committee called Execom, takes care of different responsibilities. This scheme will initially be tried out for one year, and reviewed after that. At present, these are the following Execoms:

1. Execom (students) to take care of student activities other than academics

2. Execom (Courses) to take care of academic activities of B.Tech students

3. Execom (Research) to take care of academic activities of MS/PHD students

4. Institute Execom to take care of operational matters not covered by other Execoms or Deans. There is also an Execom to take care of issues related to the School of Engineering.

IIT Mandi Corpus Fund

In late 2010, IIT Mandi Corpus Fund received its first donation. This was from an alumnus of IIT Madras, who has given another donation in 2011. The Corpus Fund has already grown to Rs. 4 lakh. We invite IIT alumni and others to donate generously. The donation will go towards providing scholarships and amenities for students, supporting research by faculty, etc. Donations could be of general nature to the Corpus Fund or earmarked for a specific purpose such as a Chair Professorship.

Design Practicum

The Design Practicum is a course designed to cultivate product design and development skills among engineering students of IIT Mandi. This is a one-semester course in which students are asked to design and build innovative products that address real world problems in our society.

Interdisciplinary teams of six students each were randomly formed from electrical, computer science and mechanical engineering branches. Each team of six students reports its progress to an interdisciplinary team of four faculty members drawn from engineering, science and humanities disciplines. In the first week the students were informed about some basics of designing and developing a new product, during the second week they are asked to talk to people and prepare a list of problems faced by people and also a list of new ideas that will help to solve these problems.

Out of these several ideas they were asked to pick a few and come up with a

product design. After thorough analysis of the feasibility and other parameters like time and cost etc., one of the designs was chosen for product development. At this stage they prepared a budget and got approval from the faculty mentors. After detailed designing they prepared a mock-up and analyzed the pro's and con's. Next, they worked hard on building a real model prototype that works. This stage is really challenging as they face many common problems like getting things in time, compatibility of components brought for different purposes and finally getting it work. On the final day the students demonstrated their prototypes for public display. At the end of the day satisfaction and benefit the student derives is immense and stays with them forever.

The following prototypes were developed during 2011-12

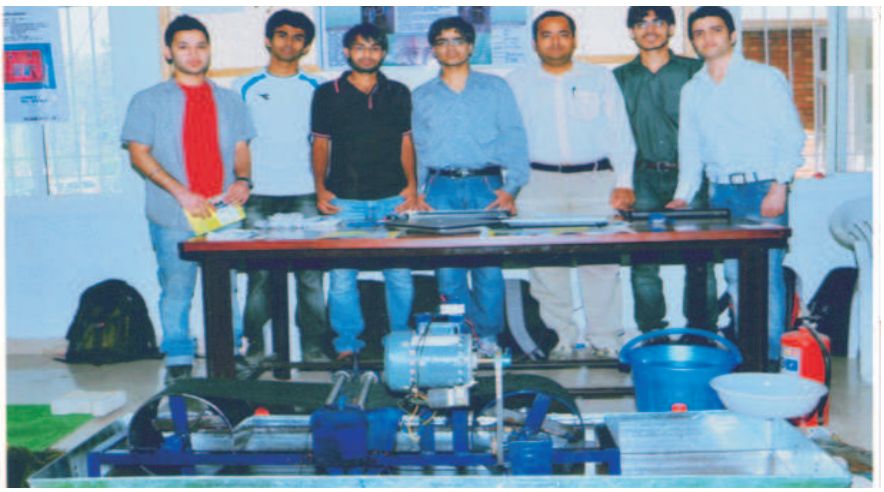
- **Adaptive intelligent traffic signal controller to optimise traffic flow and overcome delays:** Traffic control systems commonly function to minimize the delay encountered by vehicles by manipulating the signaling plans. However, pre-timed signal plans based on traffic flow data results in inefficiency, because of the inability to adjust to variations in traffic flow, especially when flow is below capacity. An adaptive controller overcomes this problem by operating signals based on traffic flow, through real-time queue estimation without being confined to a cyclic time interval. Therefore a robust system has been design to optimize the traffic flow at real time.

- **Smart prepaid electricity meter:** A smart meter has been fabricated in order to make entire electricity billing system to be prepaid and rechargeable as in case of mobile phones. The user friendly meter developed can be helpful in self managing the electricity expenditure by the users and improving functioning of the electricity department by eliminating the need of paper bills, delays in payments and account management

- **Auto rotation of solar panel:** An auto rotation system has been developed to enhance efficiency of the solar panel which can rotate the panels according to orientation of the sunlight.

- **Luggage security system:** A luggage security system has been designed which can help in preventing theft of the luggage during travel.

- **Oil spill/slick removal machine:** An oil spill/slick removal machine has been fabricated. The machine can be used for removing the slicks in the coastal areas by attaching it to ships or boats. It can also be deployed over the factory waste outlets. The oil coming out along with liquid wastes can be extracted and reused. This machine can be a great boon for environment protection owing to its oil recovering advantage over conventional oil brooms and skimmers intensity of the room. The system also has the facility to open



and close the room automatically.

- **Low cost touch interactive whiteboard for classrooms:** A low cost touch interactive white board has been designed and fabricated for classroom teaching. This interactive whiteboard (IWB) is a large interactive display that connects to a computer and projector. A projector projects the computer's desktop onto the board's surface where users control it using a pen, finger, stylus, or other device. The board is typically mounted to a wall

or floor stand. The same pen, finger or stylus can be used for writing purposes also. The movement of the pen, finger or stylus is sensed by sensors and is then used to simulate the mouse which indirectly looks as if the screen is a touch responsive screen.

- **Gas leakage prevention system:** This product has been designed to detect the leakage of LPG in the environment. Based on the leakage, it automatically turns the valves/regulator off.

- **Water temperature adjusting system:** A system has been designed

specifically to promptly mix the two water streams coming out of hot and cold taps. This product is also able to prevent unclean water gushing out of the taps.

- **Smart braking system**: The smart braking system has been developed to give warning signal to the driver of the sudden hard braking of the preceding car. Also it is able to detect the presence of car on blind turns hence reducing the chances of collision.

- **Braille desk and keyboard:** This product has developed to teach blind persons. The keyboard has an interactive interface which can read aloud for the users while typing on the keyboard.

- **Pedalled washing machine:** A low cost washing machine has been fabricated which can be operated through pedalling thereby obviating need for electrical energy.

- **Intelligent solar tracking system:** This Product enhances power collection efficiency by developing a device that tracks the sun to keep the panel approximately right angle to its rays.

RESEARCH LABS AT THE INSTITUTE

Research at IIT Mandi focuses on basic as well as applied research. State-of-the art research facilities are being created in all the disciplines. Faculty from different schools are working together in an inter disciplinary approach to address various national and global challenges. Synthesis lab is well orchestrated with the necessary fine chemicals and equipment like ultracentrifuge, ozone generator, double stage water purification system etc. The Characterization Lab was inaugurated on September 5th, 2011 by Dr. P.S. Ahuja, Director, IHBT Palampur. These labs are being used by M.S. and Ph.D. students from different schools of the Institute.

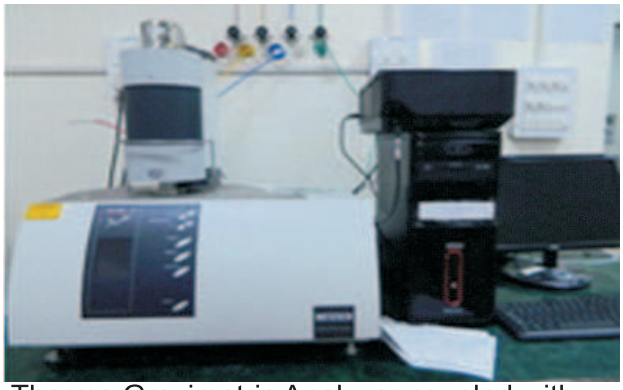
Some of the major equipment which have been installed in this year are :

UV-VIS spectrophotometer

Atomic Absorption Spectrometer (AAS)

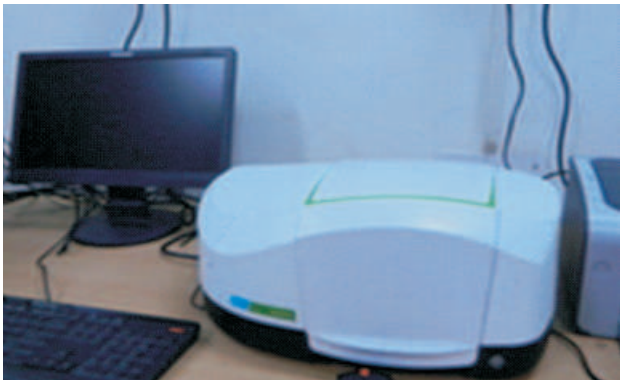
Dynamic Light Scattering (DLS)

Fluorescent spectrometer

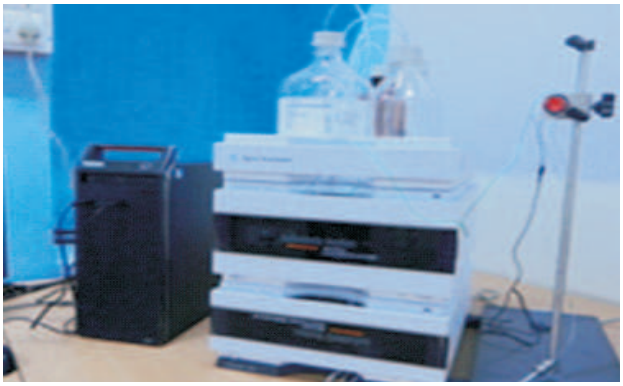


Thermo Gravimetric Analyzer coupled with Differential Scanning Calorimetry (TGA-DSC)

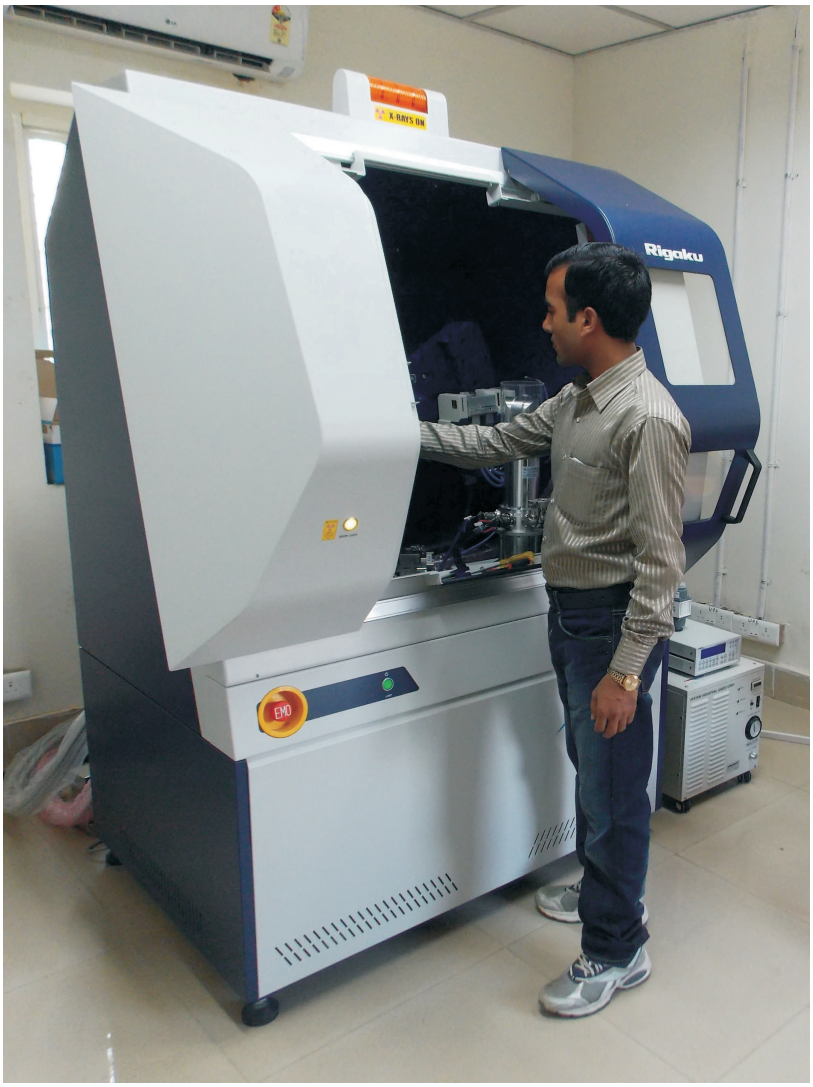
Electrochemical Analyzer



FT-IR spectrophotometer



High Performance Liquid Chromatography (HPLC)



Rigaku SmartLab 9 KW rotating anode
Powder X-ray Diffractometer

Ultra Centrifuge with refrigeration

Double stage water Water purifier or Millipore

CENTRAL FACILITIES

Laboratories

"A lab is an altar where sacrifices are made to bring something new into life"

Physics Labs

Two physics laboratories have been developed to have hands - on experience on topics discussed in theory courses of the physics curriculum. The experiments include from various branches like mechanics, electrodynamics, optics and modern physics.

Chemistry Labs

IIT Mandi is having four Chemistry labs which comprises of Two B.Tech labs, one Synthesis lab and one Characterization lab. All the labs are well equipped and have good facilities that are required for performing B. Tech experiments as well as for research.

B.Tech labs have the facilities for doing basic chemistry experiments which are essential for the students at the engineering level. The experiments performed are related to use of facilities like pH meter, Conductivity meter, thin layer chromatography, Volumetric Analysis etc.

Electrical Engineering Labs

Different Labs under Electrical Engineering department are

- Electrical Science
- Power Electronics

Electrical Science

These labs are equipped with the latest electrical machines and generators. During the year 2011-2012, some new machines for different experiments were added. A review of the machines is as follows:

Synchronous machine setup

This is one of the most widely used machine setup in electrical labs. Six to seven experiments can be done on this single setup. This machine was introduced to provide the depth in the knowledge of Synchronous machine and its practical operations.

Induction machine

There are 2 experiments related to the different concept of the Induction machine topic. These machines provide different operational concept to the students and also help in understanding of different concept of the induction machine.

BLDC (Brushless DC) machine

There are 4 experiments related to the different concept of the Brushless DC machine. This machine provides the high level concept to the students.

Power Electronics

This lab is equipped with the latest and advanced instruments like Harmonics analyzer, GEO Earth ground tester, 3-phase Inverter Power Module with TMS320 DSP trainer kit etc.

Electronics Engineering Lab

- Analog Electronics Design Lab

- Digital Electronics Lab

During the year 2011-2012 some new instruments were included to improve the quality of practical work in the electronics field. The new instruments are as follows:

I. FPGA Spartan 6 kit of 20 numbers.

II. Analog System design lab kit from Texas Instruments version 2010.

Controller

Different series of controllers are available to provide programming facility to the studentsAtmega series

- Ardino
- AVR series programmer

Computer Lab

IIT Mandi has a well-furnished computer center with latest computers. There are two computer Labs with nearly 60 computers which are networked and connected with High Speed internet. Now the Cloud Computing Technology is introduced through Novatium Thin Clients and a common VNC server is maintained in the Lab.

Mechanical Engineering Workshop

The Mechanical Engineering workshop became operational at IIT Mandi on the Kamand campus on March 30, 2012. The workshop has a variety of machines including CNC lathe machines, CNC milling machines, power hacksaw, pillar drill, bench grinding machine, spot welding machine, gas and arc welding equipment, sheet shearing machines and so on. It has an assortment of hand and foundry tools. The B.Tech IInd year students are using these facilities to fabricate products for their Design Practicum projects.

The Intranet

The Intranet provides a Course Management System (Moodle), the Insite information base (Joomla), the online Library Catalogue (Koha), and email for all the students. Moodle is a Course Management System also known as Learning Management System. Using this application educators can create effective online learning. The insite is created to act as a platform which can serve as a repository of helpful information about the Institute. Besides photos, files and other content

can be shared on the insite. The Koha is Integrated Library System which is just like a online public access library catalogue. Library users can search books online available in the library with their status.

WI-FI

The whole IIT Campus including admin block and hostels are Wi-Fi enabled. Connectivity has been provided through two different service providers i.e. BSNL, 1Gb/s link to the National Knowledge Network (NKN) and Reliance communications Ltd. 45 Mb/s link for the internet.

Virtual Class Room

The virtual classroom with a seating capacity of 130 students is being efficiently used to hold interactive classes, meetings and seminars. Several courses have been offered remotely by faculty from other IITs. The National Knowledge Network (NKN) is a revolutionary state-of-the-art multi-gigabit pan-Indian resource-sharing network aimed at digitally connecting all national universities, colleges and research establishments to create country-wide virtual classrooms. Network will consist of an ultra-high speed. Core (multiples of 10Gbps and upwards), and over 1500 nodes. The participating institutions can directly or through distribution layer connect to the NKN at speeds of 100 Mbps /1 Gbps. The infrastructure bandwidth will facilitate high speed classroom sessions. The facility can be used to transmit satellite television programmes also. With just 4 megabit connectivity an institution can simultaneously conduct up to 250 classroom sessions.

Conference Room

A well-equipped conference room is available in the second floor of academic block. This facility is being used for organizing important meetings and interactions with visiting dignitaries through the year.

Book Nook

Book Nook, the recreational library at IIT Mandi, facilitates good reading habits in the students and helps them improve their English in an enjoyable and painless way. It provides all members of the IIT community with books to suit their reading pleasure. Book Nook houses books on wide ranging topics. The largest collection is fiction running from romances and thrillers to classics and literature. There is also a growing section of books on Himachal Pradesh and local culture. Other popular collections include advice on improving one's life, diet, religion, science, innovation, entrepreneurship, history, biography and travel. Book Nook has now been shifted to the entrance hall of the academic block to be more easily accessible to all. With the advent of the canteen just around the corner, Book Nook stopped offering coffee and tea, but remained a popular place to read, work and discuss.

Book Nook Statistics

Total Holdings – 619 books

Members – 188

463 books borrowed one or more times

The most popular books:

Dan Brown -	The Lost Symbol
	Digital Fortress
	Angels and Demons
	The Da Vinci Code
Jeffrey Archer –	Kane and Abel
Chetan Bhagat –	Five Point Someone
	2States
	The Three Mistakes of My Life

Stephanie Meyer – Twilight

Agatha Christie – An Then There Were None

J. K. Rowling – Harry Potter and the Sorcerer's Stone

Vinod Mehta – Himachal

Xeroxing Facility

Xeroxing facility for the students, at reasonable rates as fixed by the Institute, has been provided at the Academic block with effect from 10th September, 2011. A vendor was awarded the contract and he has placed a Xeroxing machine and computer with printer which is helpful to the students.

Central Library

Central Library plays a vital role in furthering the academic and research mission of IIT Mandi and facilitates creation and dissemination of knowledge. Library provides essential support by offering current library services which are integrated with teaching, learning and research activities. The Library facilitates excellence in teaching, creates an appropriate learning and research environment, anticipates and responds to student learning and research needs, and provides the information infrastructure essential in today's changed environment.

Central Library at IIT Mandi is rapidly developing its collection of books, reference books, reports, periodicals, and electronic resources. The Text Book Collection in the Library provides vital support for on-going undergraduate teaching program.

The books are on various disciplines ranging from Computer Science Engineering, Mechanical Engineering, Electrical Engineering, Mathematics, Physics, Chemistry, Economics, and Philosophy. The collection for Post Graduate programs is also being developed simultaneously.

Central Library provides access to the various e-journals databases. This includes access to hundreds of journal titles each on subjects such as Mathematics, Chemistry, Computer Science, Electrical Engineering, Engineering, and Physics and Astronomy. Central Library is completely automated by using Open Source Library Management Software KOHA. All documents are bar-coded and by retro conversion all collections acquired prior to automation are also included in the Central Library book database. Transaction of books is also automated. Library has introduced various innovative services including CAS/SDI. On-line renewal of books has been introduced recently. By using Web OPAC, users can check their borrowing details online. A workstation has been set up for users to access library holdings.

1. Collection Development and Management

Collection building is one of the important functions of the library that supports academic and research work of the students, faculty, staff and other users. Library collection comprises of books, journals, reports, pamphlets and other reading material in science, engineering, technology, humanities and social sciences.

1.1 Print documents added during the year 2011-12

The Central Library acquired 1049 general books, 29 reference books and 1621 text books. It also added few periodicals/magazines, besides reprints, technical reports and annual reports of other universities/institutions.

A list of new additions of books is issued every week and can be accessed on the library home page. This list is also circulated by e-mail. An email alert is also sent

to the requesting faculty members(s) about the arrival of publications requested by them.

1.2 New electronic resources subscribed during the year 2011-12

The Central Library provides web-based access to the following e-resources:

1.2.1 Full-text databases: Access to 10000 + full-text journals from the following databases: - ACM Digital Library, ACS all e-journals, ACS Legacy Archives, APS all e-journals, ASME all e-journals , Elsevier Science Direct collection, IEEE Electronic Library, JSTOR, Springer Link, Taylor & Francis e-journals (S&T complete Collection), Nature 28 e-journals, Annual Reviews all e-journals etc.

1.2.2 Bibliographic e-databases: SciFinder, MathSciNet, Project Muse

1.2.3 E-books: Central Library is planning to go in a big way for e-books acquisition.

The Central Library provides access to the following e-books.

Tata McGraw Hill e-books on Civil engineering, Electrical engineering, Management, Science, Mathematics

2. Circulation

Circulation activities are now automated. Library users can check their borrowing details by using Web OPAC. We serve the users consisting of the faculty, research scholars, students and staff. Circulation service is kept open for 46 hours a week. On an average, the monthly circulation transactions are about 1400.

3. Digital Library

Central Library has its own homepage (http://www.iitmandi.ac.in/academics/lib/), which provides web-based access to its resources, procures over 10,000 electronic journals and databases, and is in

the process of setting up an institutional repository of publications to be brought out by the IIT Mandi community. The library is a part of the institute-wide network and has adequate computing infrastructure to cater to the needs of the users.

4. OPAC (On-line Public Access Catalogue)

The OPAC is one of the most heavily used database of the library and is accessible 24*7 via library web page (http://www.webopac.iitmandi.ac.in/). Besides listing all the documents available in the library, it allows on-line renewal and reservation, circulation, and indicates status of a particular book. OPAC is searchable by author, title, accession number, subject and several other fields.

5. INDEST Consortium

- Under the INDEST Consortium, Central Library, IIT Mandi has received access to the following e-resources:
- Annual Reviews (all e-jnls)
- Nature (27 e-jornals)
- Project Muse

6. Services Offered

- Fully automated Circulation
- Online Book Reservation, Information Search, Patron's library book loan status check
- Web OPAC (Online Public Access Catalogue)
- Reserve collection development for student's in-house reading
- New Arrival Book Section
- Reference Service
- Inter Library Loan
- Document Delivery Service
- Information Alert Services
- Selected e-resources subscription for Central Library.
- Digital Library Services
- User Education Programs

7. Visitor at Central Library, IIT Mandi (2011-12)

Margaret Law, Associate University Librarian, International Relations, Director, Copyright Office, University of Alberta visited Central Library, IIT Mandi on March 09, 2012 for developing partnerships with IIT Mandi Library.

STUDENT AMENITIES AND ACTIVITIES

Accommodation

Students are provided accommodation in five different hostels:

- Suvalsar near Academic Block –100 students, 1st Year (boys)
- Dashir at Jail Road – 111 students, 2nd & 3rd Year (boys)
- Nako at Saulikhad – 86 students, 2nd & 3rd Year boys
- Renuka Hall- near Admin Block – 31 (girls)
- Beas Kund Hall at Jail Road – 44 students (boys-MS/Ph.D)

The hostels have television, reading room, washing machines, TT Table, and Wi-Fi facility. Intra Hostel Tournaments are held. The students of Dashir, Bias Khund and Nako have been provided with bus transport to reach the Academic Block and return daily.

Financial Assistance And Scholarship

IIT Mandi is providing scholarship & financial assistance to economically weaker students. All possible efforts are made by the Institute to render financial assistance in the form of scholarships to needy and deserving students during their stay at the Institute. The institute is providing financial assistance to the students through the following schemes: -

Merit cum Means Scholarship

Merit-cum-Means (MCM) scholarships were awarded to 80 meritorious students of the Institute amounting to Rs. 46,40,000/- during the year 2011-12. These are awarded to meritorious students (a high JEE rank for first year students and CGPA greater than 6.0 for senior students), whose parents have limited income (up to Rs 4.5 lakh per year). An MCM scholarship carries Tuition Fee waiver and Rs 1000 per month.

HTRA scholarship for Ph.D and MS Scholars

Half Time Research Assistance Ship scholarship is provided to MS/PhD scholars. During the year 2011-12 Rs. 48,68,465/- as scholarship was awarded to Ph.D. students and Rs. 8,97,031/- to MS students.

Financial Assistance & Scholarship to SC / ST students

This scholarship is admissible to those SC/ST students whose parents' / guardians' annual income does not exceed the limit prescribed by the Government of India from time to time for the award of merit-cum-means scholarship. At present, the ceiling of Gross Income for such awards is up to Rs.4.50 lakhs per annum. During the year 2011-12 Rs. 2,13,934/- as scholarship was awarded to 18 students under this scheme.

Central Sector Scholarship for SC Students

The students who secure admission in IIT Mandi whose total family income from all sources does not exceed Rs. 2 Lakh per annum are eligible. This scholarship cover:

- Full tuition fee & non-refundable charges.
- Living expenses @ Rs. 2220/- per annum per student subject to actual.
- Books & stationery @ Rs. 3000/- per annum per student subject to actual.
- A latest computer with accessories limited to Rs. 45000/- per student as one time assistance during the course.
- During this period nine students were recommended for scholarship to Ministry of Social Justice & Empowerment under this scheme.

Student Societies

At IIT Mandi, students are encouraged to develop themselves as all-rounders. A diverse array of extracurricular opportunities is available for this. Cultural activities are managed by different student societies. The major student activity sections are:

- Web Design Section
- Choreography Section
- Magazine
- Programme Management
- Music Section
- Dramatics Section
- Information Management Group
- Sports / NSO
- NSS
- English Debating and Literary Society
- Robotics Section
- Hiking and Trekking

Inter-IIT Sports Meet

IIT Mandi participated in the Inter-IIT sports meet held at IIT Kharagpur during 13-19 December, 2011. Seventy Two Students participated in various events.

Sports Facilities

The Sports council coordinates all sports activities. In spite of being a new IIT, the institute has been successful in developing a firm foundation in the field of sports. Special attention is given to players by providing them with well experienced coaches and adequate facilities. Students were encouraged to participate in various tournaments like Inter-IIT, inter-college tournaments and many others. The sports being pursued in the institute are:

- Football
- Cricket
- Badminton
- Volleyball
- Basketball

- Chess
- Lawn Tennis
- Table Tennis

The “Paddal” ground next to our transit campus has a very good Football ground and cricket pitch. Volleyball court is available in the Institute. A basketball court adjacent to Institute ground is also available for use for IIT students. It is equipped with flood lights so that players can practice at night time also. Table Tennis facility is provided at the academic block, as well as at the hostels.

National Service Scheme (NSS):

The NSS unit at IIT Mandi encourages students to understand the immediate society around them as means to understanding society at large.NSS seeks to promote the search for meaning of life through the spirit of service. It provides

students an opportunity to take part in several voluntary initiatives.

Literacy Program

During the year 2011-12 NSS unit at IIT Mandi continued its literacy program. The Literacy team visited various local schools of Mandi and nearby areas and provided the students with necessary guidance and assistance regarding their

preparation for JEE/AIEEE/PMT and other such competitive entrance examinations. The Literacy team went to Ascent Senior Secondary School in Joginder Nagar, Vijay Senior Secondary School in Mandi and created awareness among students about higher education and provided them career guidance.

Workshop on Stress Management

NSS Unit, IIT Mandi organised a workshop on Time & Stress Management on November 5, 2011 in collaboration with VEDIC, a well-known Delhi-based Voluntary Organization. All staff, students and faculty participated in the workshop.

Visit to Rural Technology Centre

The NSS team visited Rural Technology Centre established at Nagwain by the Society for Technology and Development. The main objective of the visit was to understand the appropriate technology for hilly areas.

School Function at Kamand

NSS Unit of IIT Mandi organised a School function that comprised quiz and sports competition at Kamand on February 19, 2012. Two schools located at Kamand and Nalan participated in the function. About 50 students participated in the function. NSS organised an information trip for its volunteers to Manikaran and Malana.

Archiving Mandi

NSS Unit of IIT Mandi has started a project called “Archiving Mandi”. The project intends to develop a visual archive which mirrors the town's rich customs, traditions and ways of life. The purpose of this enterprise is to develop a visual

database on Mandi's history, economy, society and religious life.

Hiking and trekking

A Hiking and Trekking Club to inculcate the spirit of adventure that resides in the students of IIT Mandi has been established. With the Director himself taking interest in hiking, the club arranges trips on regular basis for interested students to various places.

Tech Fests

Students from IIT Mandi participated in various Tech fests organised at IIT Kanpur, IIT Bombay, IIT Madras and IIT Indore. They took part in various events there and brought laurels to the institute.

Indore Fest

Students participated in different events in Tech Cultural Festival in April, 2011 at IIT Indore and won prizes in some events. Ten students won the first prize in Microsoft Road to Rutas, Fluxus, a 24-hour business simulation event. Students had to design a city in the 16th century and submit a tender for the same and then they had to present that to a panel of judges who adjudged the tender to be the best. A group of four students also took part in Treb - Trouble and won 2nd prize. They had to design a trebuchet. Two Students also took part in 'Stuck in the Between', a cultural event where they won the first prize.

Mechfest'11

Mechfest, the first intra-college Mechanical festival of IIT Mandi, was organised on November 12 and 13, 2011 by ENERGY CLUB. The Fest was sponsored by S&TC IIT Mandi and Hyundai. It consisted of various events of which "Junkyard wars" was the

major event. For "Junkyard wars" four teams were selected from two selection rounds and the selected teams got an opportunity to show their skills in junkyard. The final four teams were given a problem statement of building a vehicle for a lower body paralysed person which can also enable him/her to play football keeping in mind the comfort of the person and also its implementation in Special Olympics. The teams came up with various solutions to this problem and the event turned out to be a great success.

Along with "Junkyard wars", there was a guest lecture on automobile engineering delivered by experts from Hyundai and a model bridge making competition.

EXODIA'12

IIT Mandi organised its maiden technical-cum-cultural festival, Exodia'12, this year. The festival spanned a period of two days, February 11-12th, 2012. Exodia'12 was an immensely eventful fixture with the students being involved right from its very core to the periphery. The entire proceedings beginning from the planning of every minute detail, design of various publicity materials, catering to the hospitality needs of the visitors and providing proper security arrangements for smooth conduct of the activities were managed and controlled by the students of IIT Mandi. Exodia'12 was host to over 35 events in genres like technical, cultural,

literary and gaming with them being conducted both online as well as offline. Major events included the Junkyard Wars (mechanical design), Dementia (computer programming), Band-Slam (band competition) and Ploy (management) to name a few. The events made the participants face nerve cracking competition and assisted them in polishing their skills leaving a sense of content and satisfaction among them in the end. An active participation from various colleges across the country was recorded with a footfall of about 250 students.

Workshops were conducted in the field of ethical hacking, Android application development and embedded systems. The workshops aimed at providing the students with the additional tools and knowledge which are not possible to achieve along the main stream of conventional education.

Informal activities were organised which acted as fillers between the major events. They kept everyone involved all along and brought an atmosphere of livelihood to the entire proceedings of the fest.

Performance of 'Raeth' from Pakistan

'Raeth' a Pakistan-based sufi band was invited to IIT Mandi during the event, Exodia. A pronite was organised in the Paddal ground with a musical performance from Raeth. The audience thoroughly enjoyed and grooved to the music as the band performed its famous numbers like “Bhulado” and “Tum meri ho” to name a few.

TI MCU design contest

IIT Mandi students participated in TI MCU Design contest held between December, 2011 and February, 2012 and won the Phase-I contest. In Phase-I students were asked to submit the idea/project with a block level description of the implementation of the idea/project. The students were addressing the problem of managing drunk drivers. The proposed system will detect if the driver

is drunk and whether he is in a state to drive the vehicle carefully. The system, will then take an intelligent decision on whether to stop ignition or not. If the driver is found drunk, the system will output a control signal that will stop or interfere with the ignition system. In this way, if the system is incorporated in automobiles, it can prohibit people who are drunk, from driving. The system will also include an automatic speed monitor which warns the driver in case of over-speeding. This information can also be transmitted to alert the traffic control office. With such a system in place, innocent lives can be saved and also the traffic can be brought in good order.

Republic Day Celebrations

IIT Mandi proudly celebrated the 63rd Republic Day with national fervour and exuberance. Students, staff and faculty members joined the celebration. Director IIT Mandi Prof. T.A. Gonsalves hoisted the National Flag and motivated the gathering through his effective and enthusiastic words.

Holi Celebrations at IIT Mandi

A cafeteria was opened at the academic block for all IITians for having light refreshment. The canteen was inaugurated on July 18, 2011 by Mrs. Priscilla Gonsalves.

Independence Day Celebrations

The Independence Day was celebrated with lot of zest. The national flag was hoisted in front of the academic block by the Director in the presence of the students, staff and faculty members. Students sang the National Anthem. Then, all members assembled in the multipurpose hall and a video presentation was shown. Nishant Goyal, a student, addressed the gathering and hosted the programme. Students put up a musical show and hit the right chord with various patriotic songs.

Welcome to MS/PhD Students

A gathering was organised to welcome the fresh batch of MS/PhD students on November 6, 2011 at the project room. The faculty members and staff also joined the gathering. The Director welcomed the scholars and explained the expectations of IIT Mandi from the MS/PhD students.

SBI Branch for IIT Mandi

Director IIT Mandi inaugurated the State Bank of India, IIT Mandi Branch, which is the 199th Branch in Himachal Pradesh on November 11,2011 at 10.00 am. The branch is situated near the academic block.

Third Foundation Day Celebrations

IIT Mandi celebrated its third Foundation Day on February 24, 2012 at the upcoming Kamand campus. The Director, Prof. T. A. Gonsalves, highlighted the achievements of the fast growing Institute. These include, but are not limited to, theoretical and experimental research publications by the young faculty, project funding from DIT and DST, appreciation of research work benefiting local people and industry, strengthening of the already vibrant teaching community with more faculty members, as well as the supporting administrative staff. Infrastructure is being developed at Kamand campus at a rapid pace beginning with setting up of various workshops and labs. The students of IIT Mandi have made their strong presence felt in various inter-IIT activities, be it sports or other cultural events.

Students of IIT Mandi presented an exciting mix of cultural programs during the celebrations. A major highlight of the day was the song and dance presentation by primary school students of the local school. The registrar, Dr. R.C.Sawhney, presided over the awards distribution ceremony where Mrs. Priscilla Gonsalves presented various awards and certificates to students, faculty and administrative staff.

Our upcoming new campus at Kamand

IIT Mandi has developed a master plan for a completely residential academic campus at Kamand, (just 15 kms from Mandi Town). The master plan provides basic three-dimensional configurations of facilities on the site, including land-base planning, pedestrian and traffic planning, open space planning, skyline guidelines, and layout, size and massing of major buildings on the campus. The construction of the permanent campus will take place in different phases. The tender for construction of the first phase has been awarded to M/s Ahluwalia Contracts (India) P. Ltd. The campus will not only boast of ultra-modern amenities but also of eco-friendly and sustainable infrastructure.

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*During this year meetings of the Board of Governor were held on 14/10/2011

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*During this year meetings of the Finance Committee were held on14/10/2011

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Indian Institute of Technology Mandi
Mandi - 175001

Members

Prof. Lalit Malhotra
Visiting Professor
Indian Institute of Technology Mandi
Mandi-175001

Prof. Sunil Kale
Professor of Mechanical Engineering
Indian Institute of Technology Delhi
New Delhi

Prof. Sanjoy Roy
Professor, Electrical Engineering
Indian Institute of Technology Ropar
Rupnagar.

Mr. K. N. Rai
Former Chief Executive, Civil Works, DRDO
New Delhi

Ms. Rashmi Chowdhary
Director (T), Govt. of India
Department of Secondary & Higher Education, MHRD,
New Delhi

Prof. K. C. Iyer
Professor of Civil Engineering
Indian Institute of Technology Delhi
New Delhi

Er. Udayan Ukhal
Dy. General Manager
H.P. Power Corporation Ltd.
Sunder Nagar (HP)

Er. Rajan Kapur
Superintending Engineer
Indian Institute of Technology Mandi
Mandi – 175001 (HP)

Member Secretary

Dr. R. C. Sawhney
Registrar
Indian Institute of Technology Mandi
Mandi – 175001(HP)

AD-HOC SENATE

Chairman:
Prof. Timothy A. Gonsalves,
Director, Indian Institute of Technology Mandi (HP)

Professors of the Institute:
Prof. P.C. Deshmukh, Dean (Academics)
Prof. Deepak Khemani, Dean (Students)
Prof. B. K. Mishra, Dean (Planning)
Prof. B. N. Banerjee, Visiting Professor
Prof. Lalit Malhotra, Visiting Professor

Members of Academic Advisory Council:
Prof. Manoj Mishra, E&C, IIT-Roorkee
Prof. Hari Balakrishnan, CS, MIT (US)
Dr. N.S. Narayanaswamy, CSE, IIT-Madras
Dr. Shankar Balachander, CSE, IIT-Madras
Prof. D.K. Mehra, E&C, IIT-Roorkee
Prof. S.P. Gupta, EE, IIT-Roorkee
Prof. Anil Prabhakar, EE, IIT-Madras
Dr. Nitin Chandrachoodan, EE, IIT-Madras
Prof. Sunil Kale, ME, IIT-Delhi
Prof. Babu Viswanathan, ME, IIT-Madras
Prof. Kalyanmoy Deb, ME, IIT-Kanpur
Prof. Subrata Ray, MM, IIT-Roorkee
Prof. Tashi Nautiyal, Phy, IIT-Roorkee
Dr. Aalok Mishra, Phy, IIT-Roorkee
Prof. Mala Nath, Chy, IIT-Roorkee
Dr. P.P. Thankachan, Chy, IIT-Roorkee
Prof. Amalendu Chandra, Chy, IIT Kanpur
Prof. S. Vasudevan, Chy, IISc
Prof. R.C. Mittal, MA, IIT-Roorkee
Prof. S. Sundar, MA, IIT-Madras
Prof. Shormishtha Panja, English, Delhi University
Prof. Nauriyal, HSS, IIT-Roorkee
Dr. K. Srilata, HSS, IIT-Madras
Dr. A. Thillai Rajan, Management Studies, IIT-Madras

School of Computing and Electrical Engineering
Dr. Anil Kumar Sao, Asst Professor,
IIT Mandi

School of Engineering
Dr.Vishal Singh Chauhan, Asst. Professor, IIT Mandi

School of Basic Sciences
Dr. Prem Felix Siril, Asst Professor,
IIT Mandi

Registrar
Dr. R. C. Sawhney, Secretary

School of Humanities and Social Sciences
Dr. Shweta Rao, Asst Professor,
IIT Mandi

Student General Secretary
Mr. Yugdeep Bangur, IIT Mandi

Student Academic Affairs Secretary
Mr. Manish Shankaram, IIT Mandi

Student Research Affairs Secretary
Ms. Reena Singh, IIT Mandi

ACADEMICSOFFICIALS

Prof. Timothy A. Gonsalves
Director

Prof. P.C. Deshmukh
Dean Academics (Till 8th May, 2011)

Prof. Lalit Malhotra
HoD, School of Basic Sciences
& Dean SRIIC

Prof. B. K. Mishra
IIT Roorkee
Dean, Planning

Prof. Deepak Khemani
HoD, School of Computing and Electrical Engineering
& Dean Students (Till 16th December, 2011)

Prof. B. N. Banerjee
HoD, School of Engineering
& Dean Academics (From 9th May, 2011)

Prof. B. Subramaniam
HoD, School of Humanities & Social Sciences

Sukumar Bhatacharya
HoD, School of Computing and Electrical Engineering
(From 17th December, 2012)

Administrative Officials

Dr. R. C. Sawhney - OSD & Registrar

Er. Rajan Kapoor - Superintendent Engineer

Dr. S. K. Pathak - Deputy Librarian

Er. P. K. Gupta - Project Engineer cum Estate Officer

Mr. J. R. Sharma - Finance & Accounts Officer

Mr. C. L. Sharma - Astt. Registrar (Audits & Accounts)

Mr. Puneet Goel - Astt. Registrar (Admin)

Mr. S. Samuel - Officer on Special Duty

Dr. Ghanshyam Kapur - General Duty Medical Officer

Ms. Chandan Sharma - Public Relations Consultant

Sub Maj (Retd) Salig Ram - Deputy Security Officer

Student Leadership

Mr. Saurabh Jain - General Secretary

Mrs. Reena Singh - Research Affairs Secretary

Mr. Manish Shankaram - Academic Secretary

Mrs. Pritla Vihari - Technical Secretary

Mr. Ankur Dixit - Sports Secretary

Mr. Ankur Nahar - Cultural Secretary

LIST OF PERMANENT EMPLOYEES AS ON 31/03/2012

Sl. No.	Name	Designation
1	Mr. Rajat Kumar	J E(Civil)
2	Mrs. Monika Kashyap	P.S. to Director
3	Mr. Amarjeet Devidas	P.A. to Registrar
4	Mr. Vinod Kumar	Sr. Library Info. Asst.
5	Ashish Kumar Ahirwal	Sr. Library Info. Asst.
6	Mr. Rakesh Kr Kushwaha	Jr. Accountant
7	Mr. Ramesh Kumar	Jr. Accountant
8	Mrs. Sushma Kumari	Stenographer
9	Mrs. Suchetna Shachi	Jr.Assistant
10	Mr. Sunil	Jr.Assistant
11	Mr. Bhupinder Singh	Jr.Assistant
12	Mr. Sushil kumar Pal	Jr.Assistant
13	Mr. Kamal Jeet Singh	Jr Lab Assistant
14	Mr. Amit Sharma	Jr Lab Assistant
15	Mr. Lalit Kumar	Jr Lab Assistant

Ph.D Scholars

S.No.	Enrol No.	Name of Student	Program Degree
1	D10001	Sindhu K	Ph.D (SBS)
2	D10002	Anna Varughese	Ph.D (SBS)
3	D10003	Navneet Singh	Ph.D (SBS)
4	D10004	Pushpendra Kumar	Ph.D (SBS)
5	D10005	LakshmanMahto	Ph.D (SBS)
6	D10006	Jai PrakashTripathi	Ph.D (SBS)
7	D10007	HemantJalota	Ph.D (SBS)
8	D10008	Sunil Dutt	Ph.D (SBS)
9	D10009	SougataSinha	Ph.D (SBS)
10	D10010	Vivek Kumar Mishra	Ph.D (SBS)
11	D10011	Diwaker	Ph.D (SBS)
12	D10012	AbhishekChaudhary	Ph.D (SBS)
13	D10014	Reena Singh	Ph.D (SCEE)
14	D10015	Chander Kant Susheel	Ph.D (SE)
15	D10016	Ashish Kumar	Ph.D (SBS)
16	D10017	Jitendra Kumar Verma	Ph.D (SBS)
17	D11018	Abhishek Gupta	Ph.D (SBS)
18	D11019	Raj Kumar	Ph.D (SBS)
19	D11020	Sunil Kumar	Ph.D (SBS)
20	D11021	Manisha Devi	Ph.D (SBS)
21	D11023	Hari Vansh Rai Mittal	Ph.D (SBS)
22	D11027	Anshul	Ph.D. (SE)
23	D11028	Arun Kumar	Ph.D. (SE)
24	D11030	Rajiv Kumar Maurya	Ph.D.(SBS)
25	D11031	Himadri Chakraborti	Ph.D.(SBS)
26	D11036	Jalim Singh	Ph.D.(SBS)
27	D11037	Lakshmanan.S.A	Ph.D (SCEE)

28	D11038	Abhishek Kumar Gupta	Ph.D.(SBS)
29	D11039	Reena Sharma	Ph.D.(SBS)
30	D11041	Deepak Kumar	Ph.D.(SBS)
31	D11042	Anand Kumar	Ph.D.(SBS)
32	D11043	Rajeev Kumar	Ph.D (SCEE)
33	D11044	Gurinderbir Singh	Ph.D (SCEE)
34	D11045	Thirumurugan.C	Ph.D (SCEE)
35	D11047	Pankaj Kumar	Ph.D.(SBS)
36	D11048	Priyanka Manchanda	Ph.D.(SBS)
37	D12049	Gourab Dey	Ph.D.(SBS)
38	D12051	Richa Pandey	Ph.D.(SBS)
39	D12052	Tripti Vats	Ph.D.(SBS)
40	D12053	Mohit Chawla	Ph.D.(SBS)
41	D12054	Mangili Venkateswarlu	Ph.D.(SBS)
42	D12055	Darsi Rambabu	Ph.D.(SBS)
43	D12056	K Lingeshwar Reddy	Ph.D.(SBS)
44	D12057	Shilpa Sharma	Ph.D.(SBS)
45	D12064	Sohan lal	Ph.D.(SBS)
46	D12065	Abdus Salam Sarkar	Ph.D.(SBS)
47	D12066	Manoj Das	Ph.D.(SBS)
48	D12067	Harmanpreet Singh	Ph.D.(SBS)
49	D12068	Sandeep Sharma	Ph.D.(SBS)
50	D12069	Pankaj Narula	Ph.D.(SBS)
51	D12070	Subit Kumar Jain	Ph.D.(SBS)
52	D12071	Suraj Shankarlal Meghwani	Ph.D.(SBS)
53	D12072	Swati Tyagi	Ph.D.(SBS)

54	D12074	Pravindra Kumar	Ph.D (SCEE)
55	D12075	Pulkit Sharma	Ph.D (SCEE)
56	D12076	Satyanarayan Patel	Ph.D (SE)
57	D12077	Varun Katyal	Ph.D (SE)
58	D12078	Maninder Bagga	Ph.D (SE)
59	D12079	Yashwant Kashyap	Ph.D (SE)
60	D12080	Amit Kumar	Ph.D (SE)
61	D12081	Himmat S Kushwaha	Ph.D (SE)

MS Scholars

S.No.	Enrol No.	Name of Student	Program Degree
1	S10001	RunaBarik	M.S (SCEE)
2	S10002	Sujeet Kumar	M.S (SCEE)
3	S10003	Shejin T	M.S (SCEE)
4	S10004	ranjitsingh	M.S (SCEE)
5	S10005	SrimantaMandal	M.S (SCEE)
6	S10006	Vijay Chauhan	M.S (SE)
7	S11009	Anjana Babu	M.S (SCEE)
8	S11011	Anuruddh Kumar	M.S (SE)
9	S11014	Tushar Kant Swain	M.S (SE)
10	S11015	Anshul Kumar Mishra	M.S (SCEE)
11	S11017	Ashish S.Joshi	M.S (SCEE)
12	S11018	Pothula Abhinay Reddy	M.S (SCEE)
13	S11019	Khoisnam Steela	M.S (SCEE)
14	S11020	Gaurav Vats	M.S (SE)
15	S12021	Aditya Chauhan	M.S (SE)
16	S12022	Ankit Sharma	M.S (SE)
17	S12023	Anmol Kothari	M.S (SE)
18	S12024	Manoj Dhiman	M.S (SE)

B.Tech Students – 2011 batch

Enroll	Student Name	Branch
B11001	Abhilash	CSE
B11002	Abhinava mishra	CSE
B11003	Anil kumar jhajharia	CSE
B11004	Anjaly mehla	CSE
B11005	Antim patel	CSE
B11006	Aounon kumar	CSE
B11007	Arjun bhardwaj	CSE
B11008	Avinash kumar chaudhary	CSE
B11010	Bhupesh kumar	CSE
B11011	Chandan satyarthi	CSE
B11012	Darpan solanki	CSE
B11013	Fatehjeet singh sra	CSE
B11014	Jayprakash jangid	CSE
B11015	Kallem rajashekar reddy	CSE
B11016	Khushpreet singh	CSE
B11017	Korra vishnu priyanka	CSE
B11018	Korrapati vikhyat	CSE
B11019	Kshitiz saraswat	CSE
B11020	Makhijani nidhi manoj	CSE
B11021	Md afsar reza	CSE
B11022	Mohit kumar	CSE
B11023	Mohit rawat	CSE
B11025	Pankaj kumar verma	CSE
B11026	Rishabh sahu	CSE
B11027	Ritish	CSE
B11028	Rohit shukla	CSE
B11029	Sachin s bhat	CSE
B11030	Sachin tyagi	CSE
B11031	Sahil mutneja	CSE
B11032	Saket panwar	CSE
B11033	Saurabh jain	CSE
B11034	Shreevardhan damani	CSE
B11035	Shubham ajmera	CSE
B11036	Surendra anuragi	CSE
B11037	U shivateja reddy	CSE
B11038	Vaishali	CSE
B11039	Vinod kumar	CSE
B11052	Akshay sharma	CSE
B11062	Jagmohan singh	CSE
B11069	P nagarjuna	CSE
B11071	Prakhar agarwal	CSE
B11086	Umang jain	CSE
B11108	Ankit srivastava	CSE
B11118	Chinmay krishna	CSE
B11129	Nishank kumar gupta	CSE
B11132	Pranav kumar singh	CSE
B11136	Sama gnaneshwar reddy	CSE
B11139	T bala vineeth netha	CSE
B11102	Abhishek kumar	CSE
B11051	Abhinav singh	EE
B11053	Ankit verma	EE
B11054	Apoorva bhatia	EE
B11055	Azmi omair ehsan	EE
B11057	Dushyant singh	EE
B11058	Eare neena	EE
B11059	Gulshan pancholi	EE
B11060	Harkaran singh	EE
B11061	Hemant chawla	EE
B11063	Jyoti lakra	EE
B11064	Kamal kumar raj	EE
B11065	Kapil kumar dhaker	EE
B11066	Manish ladla	EE
B11068	Nagarjun narayan	EE
B11070	Pradeep seervi	EE
B11072	Priya agarwal	EE
B11074	Raj kumar	EE
B11075	Rajiv ranjan yadav	EE
B11076	Ravinder kumar	EE
B11077	Rohit kanaujia	EE
B11078	Sawan kumar meena	EE
B11079	Sourabh singh	EE
B11080	Suhail hameed	EE
B11081	Suleman alam	EE
B11082	Suramya gupta	EE
B11083	Syed jafar shahid rizvi	EE
B11084	Tejas jayantilal lunawat	EE
B11088	Vikas kumar meena	EE
B11009	Bhagwan sahay meena	EE
B11125	Lalitesh kumar meena	EE
B11101	Abhay chowdhary	ME
B11103	Abhishek kumar gupta	ME
B11104	Ajay kumar	ME
B11105	Amit bhati	ME
B11107	Ankit gupta	ME
B11109	Ankit yadav	ME
B11110	Anurag rawat	ME
B11111	Arpit ajay narechania	ME
B11112	Ashish kumar	ME
B11113	Ashok kumar choudhary	ME
B11115	Baratam chamundeswar nadh	ME
B11116	Bhavesh silawat	ME
B11117	Bijon kowshik paul	ME
B11119	Harshit singhal	ME
B11120	Ingale swapnil sushil	ME
B11121	Kalu ram meena	ME
B11122	Karpe mandar nitin	ME
B11123	Kishore bohara	ME
B11124	Kushal mundle	ME
B11126	Mahendra singh meena	ME
B11127	Mano c	ME
B11128	Navneet yadav	ME
B11131	Paradhi vinit wamanrao	ME