



Connecting Thinkers...



Editors' Message



Welcome to the third issue of THINKLET. Jain University organized its second Research Retreat last month, where close to 300 Ph.D scholars presented the progress of their doctoral research. Three general plenary and four faculty specific plenary sessions were organized where experts in the fields of humanities and social sciences, management, science and engineering shared their thoughts, experiences and ideas in order to encourage and motivate the research scholars. It was also a great honour to formally release the second issue of THINKLET during the inaugural function of Research Retreat amidst all the research scholars, guides and mentors of the University. An overview of the Retreat has been included in this newsletter. You can also read the detailed report of all plenary sessions on the Jain University website.

The centre in focus for this month's issue is the International Institute for Aerospace Engineering and Management, which has been conducting research and providing globally relevant education and training to support the growth of technology and creating human resource in the field of Aerospace Engineering and Aviation Business Management. The Institute has received overwhelming support from academic institutions, R & D laboratories and Industrial organizations such as ISRO, HAL, AAI, NAL, Air India, BIAL and the like. and also has MoUs with various research institutes in India and abroad for conducting research activities, and holding professional training and joint academic programs.

Happy Reading!

Forthcoming Research and Consultancies Activities

March 6th and 7th, 2015 : Quantitative Data Analysis Workshop. Registrations are open from 7th February, 2015. For further details contact: res.coursework@jainuniversity.ac.in.

Award of Ph.D. to three students in February 2015:

Mr. M.S.Amarnath; Guide: Prof. Choodamani Nandagopal; Title: "Alternative Approaches in Art Practices"

Mr. H S Satyanarayana; Guide:Dr. Talavar Vamdev; Title: "Poornachandra Tejaswiavara Kathana Sahityada Samsrutika Nelegalu"

Mr. G Lakshminarayana;Guide: Dr. M MBagali, PhD; Title : "Study on Faculty Performance Management System in Private Management Educational Institutions"

Inside this Issue

Dean's Column	2
Research Retreat: A summary	3
Article by Srinivas	4
Article by Bhaskar	4
Article by Prof. Hemanth	5
Article by Dr. Sunil More	5
PhD Comic Strip	5
About International Institute for Aerospace Engineering and Management	6

Dean's Column

Space, Time and Matter are the constant and abstract challenges for the human resource development and management through centuries in all the civilizations. This has been the ultimatum to modern science to combat, conquer and compromise through theory, practice, research and innovation. The modern world is experiencing the effective consequences of the scientific development both in positive and negative ways. As long as the primary objective of using 40% of natural resources to human development, and the rest to leave to natural state at every point of time, the scientific achievement is laudable. But once the race in conquering the nature cuts the equilibrium, the nature takes its own course; it is unimaginable for science to comprehend. In Indian thought the Space, Time and Matter, the constant challenges are seen and approached with a broader perspective.

The *Panchamahabhutas*, the five primordial elements namely, the *Pruthvi* – the Earth, *Jala* - the Water, *Vayu* - the Air, *Agni* - the Energy and *Vyoma* - the Space or cosmos, are primordial to mundane life, to philosophical thought, to across religions of the world, to the welfare of state and mechanism, to science, to arts and to the very core of human understanding. Around this unique thought the understanding of universal truth evolved and reached the pinnacle of human compassion with an underlying principles of utilizing the above five primordial elements scientifically and judiciously in Vedic thoughts, Buddhist sermons, Jaina practices and other schools of wisdom. India through this progressive thinking process emerged strongly as one of the main contributors for knowledge society and knowledge economy. The contribution of India cannot be undermined in the process of globalization. In this context, Julius R Oppenheimer, great scientist, philosopher and the father of Atom Bomb sincerely expressed, “What we shall find in modern Physics is an exemplification, an encouragement, and a refinement of old Indian wisdom”. Similarly, Albert Einstein, one of the greatest scientists and humanist remarked, “We owe a lot to Indians who taught us how to count, without which no worthwhile scientific discovery could have been made”.

Echoing and experiencing all of the thoughts discussed above, the eminent physicist Fritj of Capra, while writing the preface for his book, *Tao Physics*, poignantly opines, ‘ after years of detailed analytical thinking, it was so overwhelming that I burst into tears, at the same time, not unlike Castaneda, pouring out my impressions on to a piece of paper. Later came the experience of the Dance of Shiva which I have tried to capture in the photomontage. It was followed by many similar experiences which helped me gradually to realize that a consistent view of the world is beginning to emerge from modern physics which is harmonious with ancient Eastern wisdom’. It is worth reading this book by all researchers across the disciplines.

Now, is the world caught up in the rat race in all spheres of life, exhausted and looking at something beyond? Is there a need to review the fundamental questions of human existence? The answer certainly lies in the approaches of human sciences, arts and social sciences, which have the potential to elevate the human psyche, review the economic, social, political and cultural strengths to enhance the quality of life both within and outside. . The faculty of Humanities and Social Sciences at the world renowned universities is the soul and works as the software of the entire academic system. Promoting freedom of choice across the disciplines is the very purpose of quality education. The University of Nalanda of 6th century is an everlasting icon of the academic standards of all the times to emulate

Presently, research studies at Jain University that are taken in core areas of Humanities and Social Sciences such as Governance and Public Administration, Economics, Media Studies, Visual Arts and Performing Arts along with the emerging area of research known as Cultural Studies to resolve many unsolved riddles of human history, society and culture. Jain University, through this faculty, opened up a floodgate to the young minds to pursue their studies with cross-cultural and multi-dimensional approaches across the disciplines. The scope here is enormous and the sky is the limit. Through this column I wish all the researchers, consciously connect to human values.



The Nalanda University

Dr. Choodamani Nandagopal
Dean. Faculty of Humanities & Social Sciences
Jain University

Research Retreat- Exploring Pathways, Unlocking Ideas ; A Summary

Jain University organized a one of a kind gathering for research scholars to review the progress of their research work among peers and experts. The atmosphere on a Saturday morning, 31st January 2015, was buzzing with anticipation and excitement for what was in store for the next 48 hours. The retreat began with scholars registering in their respective domains; followed by the inaugural ceremony. The ceremony began with the lighting of the lamp. The inaugural message was delivered by the President of Jain University, Dr. Chenraj Roychand. He spoke of how research should be a passion which one pursues for the love of knowledge and learning. The event was chaired by the Chancellor, Dr. C G Krishnadas Nair, who emphasized on the inter-disciplinary nature of research that covered socially



relevant topics and the need for upholding ethical norms. Dr. Sundararajan, Vice Chancellor, Jain University graced the occasion. Dr. Sandeep Shastri, Pro-Vice Chancellor, Jain University acknowledged the presence of close to 300 scholars and over 100 guides who were present at the event. The vote of thanks was proposed by Dr. Mythili Rao.



At the Three Plenary Sessions, distinguished researchers and eminent citizens spoke on themes that provided the right intellectual ambience for the Retreat. Dr B.N.Suresh, the President of the Indian National Academy of Engineers (INAE) spoke on Interdisciplinary Research for the Benefit of Society. The Second Plenary Session was addressed by Dr. R Natarajan, former Chairman of AICTE and former Director of IIT, Chennai. He spoke on the Nature and Scope of Research and Development and Innovation. The Third plenary Speaker was Mr. T V Mohandas Pai, Chairman of Manipal Global Education.

He spoke on the Role of Research in Building a Great Society. There were also four Faculty Plenary sessions.

The Research Retreat also saw the participants breaking up into over twenty Department Related Plenary Sessions. The Retreat also saw a unique Cultural Programme in which Doctoral Students of the University in the field of Music and Dance showcased their talents. The Valedictory Address was presented by Dr. R S Deshpande, former Director of ISEC.

The volunteers for the Retreat were distributed across various committees such as catering, transport and the pre-conference committee. Each committee had unique responsibilities. The pre-conference committee had the task of putting together the files, notepads, badges, food coupons, and stationary items for all the participating research scholars and the respective guides. The transport committee with its active members worked round the clock to ensure the departure and arrival of dignitaries at the venue. The members of the catering committee worked to co-ordinate with the caterers to provide delicious food and beverages for over eight hundred people and made sure no one was left hungry. The efforts of all the committees converged to make the running of the Retreat smooth and hassle free.



Find a detailed report of all the lectures presented during the Retreat here: <http://www.jainuniversity.ac.in/PDF/2014-15/repo-Research-Retreat-2015.pdf>

Electronic Cooling Vital For Performance Of Devices (Ics) In Laptops/ CPU

My research area is on designing of low cost, effective, highly optimized thermal management heat sink, by way of experimental and CFD analysis of dual materials in laptops/CPU. Researchers are yet to optimize the operating temperatures of electronic devices cooling such as IC's in the mother board of laptops and CPU's; as it is one of the major thermal management problem to overcome heat dissipation from the Integrated circuits (IC's). Therefore, maintaining the temperatures of IC's is vital for overall performance of the computer for long period under adverse conditions.

Maintaining the temperatures of Integrated circuits is vital for overall performance of the computer for long period

We have lots of heat sinks (heat dissipater) of varied materials, but we should also look for cheap and adaptable materials with maximum Heat output from IC's. Nowadays, a lot of mother board IC's are cropping up that is leading to a failure of IC's functioning and ultimately computer malfunctions. In India, we have less experience in maintenance and repair of chip level services of laptops/CPU than the developed countries. Heat sinks have very complex geometry and software as CFD helps in very fast and accurately designing, testing, and building prototype thermal management for devices of various materials and dimensions.

Srinivas Deshpande
Ph.D scholar, Mechanical Engineering

Corruption and Media

In media, publishing or telecasting, corruption-related issues is not like giving information about the day's transaction in a share market. The implication of corruption is one: people feel betrayed by the one or many who indulged in a corrupt act. If a corruption case happens in a government department, citizens think, tax payer's money has been robbed. When citizens respond to corruption with anger; the media which is also part of the society reflects these sentiments. In most of the cases, media's reaction to corruption is almost identical to that of an ombudsman. Since media is considered as an industry reporting corrupt cases it helps get more readership. The famous phrase, 'Media Trial' has been perhaps coined considering the trait of the media: it asks those questions what the common man cannot ask. In a majority of the corruption cases, the media prefers to give voice to common man's frustration than giving a chance to the accused. So, the media trial looks one-sided.

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Be it an incidence of corruption in a local body or the state or the union government, media takes an identical stand. Many have a concern about corruption in media. Fortunately, 'Paid News' is under the scanner of Election Commission of India. It has come out with a mechanism to observe media during elections. But, the media faces a bigger challenge when 'interests' of a company or companies are promoted through benign news and columns. Many would argue that the inherently weak revenue model seems to be the reason for this and therefore, it will be interesting to see how media as a sector, faces this challenge in the days to come.

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Managers By Profession; Not By Designation

“Will a person performing only managerial functions become a manager?” Most of the successful managers say “NO”. That means there should be a lot more in a person to become a manager, if not successful manager. In fact, most of the managerial skills are taught to us from our childhood; such as, time management, budgeting, utilizing available resources, maintaining relationships, communicating effectively & efficiently, speaking politely, aggressiveness, leadership, so on and so forth. Some grasp these skills and adapt them early; some take time to adapt and some never. It is about integrating all the learning from observation and putting the learning into observable practice. Since the day we start taking smaller responsibilities, our management skills

begin to develop. Most of the management students lack this “attitude”. Companies are not at all differentiating an under graduate and a post graduate for with same profile with same

There is a scarce for industry ready post graduate students in management who can start delivering from the word ‘go’

remuneration. Is it the confidence, lack of focus, or casual attitude towards life that these students are lacking? Irrespective of the domain and origin, most of the companies in India are facing acute shortage of managers – by profession. There is a scarce for industry ready post graduate students in management who can start delivering from the word ‘go’. In conclusion, I would like to quote Marie Taylor who says *“If a manager by virtue of their title was a professional in a profession called management, a large proportion of the people I*

meet with the word manager in their job title would be thrown out of their professional club for failing to meet standards”. Just because we name something, doesn't make it so.

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Herbal Antidotes For Snake Bites And Industrial Enzymes

The research group of Toxinology and Industrial enzymology at Department of Biochemistry, Jain university is currently involved in evaluating folk medicinal plants for active herbal phytochemicals against deadliest venomous snakes of India. Envenoming and deaths due to snake bite is a common occurrence worldwide and is been considered as one of the neglected tropical diseases. Currently, anti-venom immunotherapy is the only available treatment which is inaccessible to most of the rural population and storage is a major concern as well. To overcome such drawbacks the plant/s metabolites are extensively evaluated for its medicinal application to the same. The extracts of plants are evaluated for its neutralizing capacity of toxic enzymes, pharmacological and toxicological effects of the snake venom. The potential of purified metabolite or metabolites (synergistic potential) are evaluated same as that of crude. The study provides an alternative and helps in bridging the gap between the bite and the treatment. Apart from being poisonous the venom enzymes and non enzymatic polypeptides have therapeutic potential.

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The potential of the venomous components has been studied in conditions like cancer, Alzheimer's disease, arthritis, osteoporosis, cardiovascular diseases. In this regard the venom toxins could serve as a starting material for drug discovery to treat many more pathophysiological conditions. Extensive research and clinical trials in this arena would provide a path to combat human suffering and deaths. Our research group is also focussing on enzymes of commercial importance. Enzymes have an incomparable application in the industries. The food processing, detergent and textile industries and also the therapeutic areas take up a major segment in market sectors. The prime focus is on screening of novel strains from nature, cultivation of the potential microorganism under conditions that induces enzyme production, enhancing yield, purification and development of some valuable applications. Also, major emphasis is also laid on bringing down the cost of the enzyme production and unravelling the capabilities of the enzymes.

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International Institute for Aerospace Engineering and Management

Mission of the Institute:

As an integral organ of Jain University, the mission of the International Institute of Aerospace Engineering and Management is to generate high quality human resources in the field of Aerospace engineering and aviation business management and to pursue research excellence in this field. The Institute which owes its origin due to the initiative of the Society of Indian Aerospace Technologies & Industries (SIATI) in association with leading aerospace organisations in the country is endeavouring to deliver education uniquely balancing three vital aspects of scientific advances, technical practice and business applications.



Students at work on a static flight simulator

Programmes and facilities

Recognising Aerospace Engineering to be one of the most technologically challenging and multidiscipline oriented fields with a vastly diverse industrial structure, the Institute maintains the relevance of the curricula for its academic programs through a vital linkage with accomplished academia and experts from industry. Apart from its regular graduate, post graduate and doctoral and sponsored research programmes, the Institute contributes to continuing education through short term workshops and a M Tech (by research) program to benefit working professionals. The institute is equipped with a range of laboratory facilities including fixed base flight simulator and low speed wind tunnel facilities. The learning environment is also enriched by the availability of modern design and analysis software, in tune with needs of industry.

Research thrusts

Research pursuits at the institute are driven by user demands as well as faculty resources available covering wide ranging fields. These include but not limited to the following areas:

- Structural Health Monitoring & Damage mitigation: cracks in both metallic and composite structures are investigated with focus on life time predictions
- Controlling autonomous flight of Unmanned Air Vehicles, and obstacle avoidance in pitch plane
- Sensor Fusion and Image Processing for C4I (Command, Communication, Computer, Control and Intelligence) System
- Development of a lightweight low-cost attitude sensor
- Development of a state of the art diagnostic neural network model for a gas turbine engine
- Computational Fluid Dynamics based analytics in aerospace design

Flow visualisation experiment in wind tunnel



International collaborations

Design and development of Fixed Base Flight Simulator for Cessna 172 Aircraft has been undertaken by the institute under a collaborative contract with the International Institute for Advanced Aerospace Technologies (IIAAT), St.Petersburg, Russia. In addition, the Institute by virtue of its unique strengths had been exploring collaborative endeavours with other leading aerospace leaders such as the French multinational aircraft and engine, and aerospace component company like SAFRAN S.A. for cooperation in research and training and also with the renowned Institut Aéronautique et Spatial (IAS) of France.

Relevance of research pursuits and building of human capacity in Aerospace

There is already very challenging agenda worldwide for research in the field of aerospace driven by the imminent needs for replacing fossil fuels, which are fast depleting, and for safer, faster, cheaper and longer air travel with more sophisticated traffic and health management systems.

In spite of slowdowns and restructuring in global aerospace industry over the past years, aviation sector in India has been witnessing a growth trend. Just over the past decade India's domestic airlines passenger traffic had grown nearly fourfold to a level of 61.42 million passengers in 2013. The policy trends of the government are also to facilitate greater private investments into the aviation and aerospace sectors and to assist India becoming a hub for engineering services, manufacture as well as Maintenance, Repair and Overhaul (MRO) services catering to both domestic and global markets. While this augurs well for Institutions like IIAEM, the challenges are also formidable to meet expectations of the internationally competitive business and industry.

International Institute for Aerospace Engineering and Management

How IIAEM intends to gear up to this challenge? It aims to pursue following multi pronged strategies:

- Developing stronger relations with large aerospace majors/ SMEs for sponsorships of R&D projects
- Further tuning academic programmes to meet emerging human resource needs of the Indian companies (including those targeting 'offset' policy for growth)
- Reviewing and updating of skill development programmes, as India continues to emerge as a destination for manufacturing
- Refining focus areas for research and consultancy based on faculty strengths—pursuing excellence in niche areas such as aviation safety and health management of aerospace systems
- Diversifying educational /research programmes into areas such as space instrumentation, UAS, small satellites etc.

The collaborative concept among academia, industry and national programmes is one of the key strengths that the institute continues to nurture.

A key consideration in evolving this strategy of focusing research is to identify "central theme" which has high contemporary relevance and also one that integrates various areas of expertise possessed by the highly experienced faculty working now at the institution. The field of 'Aviation safety' is one such area which can immensely benefit from scientific inputs derived out of research, improving upon the existing practises. R&D driven by such a purpose is highly relevant for optimizing cost, time and technical performance. Also, the modern aviation safety encompasses activities that span the entire product life cycle and a holistic treatment for safety is yet to be fully developed. Many thrust areas that would need attention in that context are models for damage growth and concepts of damage tolerance, Structural Health Monitoring and non-destructive testing, airworthiness and certification, Air Traffic Control, collision avoidance, airport and runways design, to mention a few.

In conclusion, the Institute is committed to high standards of quality in all its activities. The rich and varied expertise of Faculty at the institute creates a culturally rich and inspirationally performance-oriented atmosphere for the students. The Institute believes that its environment will encourage cooperation and team work, inculcation of responsible behaviour and leadership qualities and professional skills befitting a globalised world in the true seekers of knowledge.



Students testing their designs of water rockets

Take up one idea. Make that one idea your life - think of it, dream of it, live on that idea. Let the brain, muscles, nerves, every part of your body, be full of that idea, and just leave every other idea alone.

- Swami Vivekananda

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