Editorial

Newsletter of NITMAS

By DEBESH CHOUDHURY

The N. E. O. T. I. A. Institute of Technology, Management and Science (NITMAS) completes twelve long years of existence, which started its academic journey since October 2002 under the trusted name “Institute of Technology and Marine Engineering”. The institute is renamed as NITMAS since 2008 when it was undertaken by the Ambuja Neotia Group. During this long period NITMAS has got many success stories in terms of achievements by the students and the faculties.

In the recent years, the institute is seeing new directions. Prof. Amitabha Sinha has taken the responsibility as its Principal. Efforts are put to improve the institute as a whole. Faculty activities have increased in terms of research paper publications and presentations. New research projects are on the line. In house students’ training programs have been organized in the institute on VLSI and embedded systems design. Regular faculty seminars are being organized. A series of special lectures have been organized by invited researchers and academicians. It is strongly felt that we should have a newsletter which would be a platform to showcase these achievements.

It is a matter of great pleasure and satisfaction that we are able to publish a newsletter for NITMAS. This is the very first issue of it. The central idea of the newsletter will move around education and learning, so it is aptly named as Learning Times. This newsletter will publish about current events and various activities in and around NITMAS.

We solicit short articles reporting recent events in NITMAS. This can include brief reports on workshops, seminars, conferences, academic events, trainings etc. The newsletter will also highlight the achievements by the students and the faculty members in conferences, workshops, seminars etc. outside NITMAS.

R&D at NITMAS

By AMITABHA SINHA

Academic disciplines grow with the inventions and discoveries made by our predecessors. To enliven our academic existence, we must strive for research. The academic fraternity of NITMAS is very much aware about the importance of research in academics. Most of our faculty members are engaged in research activities. Some of them have already got rich experience. A number of the younger faculty members are pursuing doctoral research in reputed national universities and institutes. A few faculty members have recently completed Ph.D. and received the degree. Naturally, a good number of research publications exist under their names. A textbook and a book chapter were also published. The institute has recently compiled a volume, namely Annual Report on Publications, containing all the research papers of the faculty members during the calendar year 2013. We have a total 42 research papers published in 2013.

NITMAS is committed to excel in research and aims to develop state-of-the-art facilities. With this vision, a separate Division of Research and Development (R&D) to look after the R&D activities is constituted. Prof. Debesh Choudhury is the Head of the new Division of R&D. A Centre for Development in Embedded Systems & VLSI Design has also been founded. The activities of this centre are to train faculties and students and to carry out research work in the fields of embedded design and VLSI. A two-week training program for the B.Tech. third year students has been organized during 2-15 January, 2014 (see a separate section). The Division of R&D considers research proposals from NITMAS faculties for funding.

Ph.D. Degree Obtained:


Ph.D. Thesis Submitted


Notable Papers / Lectures in 2013

(1) “Reconfigurable DSP processor – A new computing platform for software radio applications”, Prof. Amitabha Sinha and Amrita Saha, Fourth World Congress on Software Engineering, Hong Kong, China, 3-4 December 2013.

(2) “Color sensing under microwaves” (Invited Paper), Prof. Debesh Choudhury, special conference Tribute to H. John Caulfield, SPIE Optics+Photonics, San Diego, California, USA, 25-29 August, 2013.

Book / Book Chapter Published

(1) Sujit Dhar, Discrete Electronics Circuits and its Applications (University Science Press, New Delhi, 2011).


Rangoli by the students on Mar 28, 2014

Learning Times is the only official newsletter of NITMAS, and is available in the institute website and the campus URL at http://www.nitmas.edu.in/LT and http://campus.nitmas.org/LT as a PDF and DjVu file. Enquiries may be mailed to LT@nitmas.edu.in or contact the editor on mobile +91-9831369809 and fax +91-3174-245108
VLSI Laboratory
By SAMIK SAMANTA

To excel in various aspects of VLSI design and microelectronics, to establish strong research links with industries in India and abroad, and to train manpower in VLSI, NITMAS has developed a modern VLSI Design Lab. NITMAS has a strong presence in the area of microelectronics and VLSI. While the Department of Electronics & Communication Engineering forms the nucleus for research in the area, there are inter-disciplinary collaborations with faculties in the Departments of Computer Science and Engineering, Electrical & Electronics Engineering, Information Technology and Biotechnology.

Contributions by the microelectronics group encompass physics and technology of devices, circuit design, and system architectures among others. The group has considerable expertise in characterization, modeling and simulation. This lab is extensively used by B.Tech and M.Tech students along with the faculty members who are carrying out research in the area of microelectronics & VLSI. Principal areas of research are: circuit simulation & verification of modern VLSI circuits, Low Power VLSI Design, VLSI Signal processing, FPGA based embedded systems, reconfigurable architecture facilities. The institute has excellent facilities for design & simulation of CMOS integrated circuits, including state-of-the-art VLSI CAD Tools and software (Xilinx ISE Design Suite, Mentor Graphics IC Design Tool, Cadence Design Suite, MATLAB). The department also plans to procure one fabrication tool and other VLSI CAD tools, such as Synopsys, TCAD etc.

Many students and faculty members have published their research papers in various national and international conferences and journals out of research work carried out in this lab.

Winter School on VLSI & Embedded Systems Design
By SUJOY BISWAS

NITMAS is committed to the pursuit of excellence and aims to attain development for all students as well as research activities. With this vision we at NITMAS have setup a Centre for Development in Embedded Systems & VLSI Design. The activities of this centre are to train faculties and students and to carry out active research work in the fields of embedded design and VLSI.

In the year 2013, the research activities of this centre were published as 10 research papers in reputed journals and conferences. This has been in the fields of Reconfigurable Computing, Digital Signal Processing, and Software Defined Radio, and RF engineering. The labs of this centre are well equipped with CADENCE, Mentor Graphics tools for VLSI design, VIRTEX 5, SPARTAN FPGAs, Texas Instruments C6000 DSP boards for signal processing applications, and Cypress PSoCs to support research activities in embedded and VLSI design.

Among the activities of this centre, a winter school on VLSI and Embedded System Design was held during January 2-15, 2014 with 24 students from the Electronics and Communication Engineering stream. VLSI design and embedded system industry is growing exponentially and globally in India and the course was thus aimed to train pre-final year students to meet the needs of this ever growing industry. The training program bridged the gap between industry requirements and students skill set. On successful completion of the course the students had a strong understanding of the theoretical concepts and practical knowledge essential to be industry ready.

The following faculty members were the teachers of the winter school: Prof. Amitabha Sinha, Prof. Debesh Choudhury, Prof. Sujoy Biswas, Prof. Biplab Roy, Prof. Samik Samanta, Prof. Amrita Saha, Prof. Suman Haldar, Prof. Biswarup Mukherjee and Prof. Sujoy Mukherjee.

Seminar on Emerging Technologies
By DEBESH CHOUDHURY

IT Student for Google Summer of Code 2014

By SUBRATA BOSE

A fourth year B.Tech. student of the Department of Information Technology, shri Indradhanush Gupta, has been selected for prestigious Google Summer of Code 2014. This is selected from a huge number of students’ project submission world wide.

Indradhanush will receive a grant of US$5500 for working towards his project under LEAF, a non-profit organization of USA during this summer. He doesn’t need to physically go there, but he will work with guidance from his mentor at LEAF via internet only.

Alternate transport for UIDB sync protocol, by Indradhanush Gupta

Abstract: HTTP, although an excellent mode of communication is poor for message transfers. It uses persistent connections which unnecessarily hog up network resources for messaging applications like the sync process used by LEAP Encryption Access Project. The implementation uses UIDB, which provides no alternative transport other than HTTP. Thus it’s imperative that an alternate transport be used for such applications. Also it should let users select specific documents to sync and recover from a crash.

Indra is very excited. He says, “I had applied last year, but failed. So I tried again this year and once I saw that I was accepted, I realized that my hard work and perseverance had paid off”. Prof. Amitabha Sinha, Principal, says, “We always encourage and support the students for such competitions. Indra’s winning project is an example of NITMAS students’ urge to do something worth”.

Doctoral Research on Inventory Management

By SAMBHU DAS

INVENTORY control and maintenance of physical goods are important problem in almost all enterprises in any sector of an economy. An item of stock is replenished through procurement (by production and/or purchase) as it is depleted to meet the market demand and this demand procurement-inventory process keeps the market economy dynamic. Individually they provide the means by which the organizers efficiently organize operations such as manufacturing, purchasing and/or distribution so that ultimately the end users receive the desired level of service and benefit. Inventory problems was first analyzed mathematically by Harris of Westinghouse Corporation, USA in 1915. He derived the classical lot size formula or the Economic Order Quantity (EOQ) in order to determine an order quantity that minimizes the sum of the ordering cost and carrying cost per unit time. In this thesis, we introduce (i) Dynamic pricing to traditional EPQ models time and price sensitive products. A solution procedure is presented to determine optimal prices, optimal number of production cycles, optimal lot size and optimal profit simultaneously. (ii) The trapezoidal type demand rate with respect to time allows three-phase variation, representing the growth, the steady and the decline phases of demand with respect to time commonly experienced by most seasonal products during their life cycle in the market. It is well observed that a temporary discount on selling price provides significant increment in demand rate. Here we want to investigate in which time phase a temporary discount on selling price may be given to maximize the profit per unit time. (iii) A distributor retailer inventory system is discussed here with time and price dependent demand. It is assumed that the retailer has the opportunity to adjust her several lot sizes and hence has the privilege to set unit end customer prices in each of her replenishment cycle. The coordination issue of a two-echelon supply chain, consisting of a distributor and a retailer is discussed. The effect of revenue sharing contract mechanism is examined under trapezoidal type and unit selling price sensitive demand rate. The relationships between distributor and retailer are modeled by non-cooperative Stackelberg game where buyer and seller take turn as leader and follower. And (iv), two component quadratic inventory level dependent demand is introduced and optimal replenishment policy under such demand function is analyzed.

SANKALP – The Technical Fest of NITMAS

By SUMAN HALDAR

As every year the technical fest ‘SANKALP’ took place on 2nd and 3rd of March, 2014. Sankalp is organized by Techniche’ the technical club of NITMAS. The motivation of this technical club in NITMAS campus is to develop the students mind by making, designing and innovating new ideas with integrating different field of engineering and technology in existing curriculum. SANKALP is a platform for all the students to show their technical talents and interest in different fields of robotics. SANKALP first emerged as a grand success in 2010 where it attracted a huge number of participants from other colleges in West Bengal. As the Co-ordinator of Sankalp, we selected a team of students from all the departments of NITMAS. The technical club, “Techniche” officially established in 2010 with the help of the students, namely R. Balakrishnan, Sourav Hal- dar, Ravi Naguri, Vibhas Amar, Praneet Ambastha along with other Techniche
members. Sankalp also refers to the independent body of students who organize this event along with many other social initiatives and outreach programs round the year. Sankalp 2014 attracted almost two hundred and fifty enthusiastic participants from various colleges located in Kolkata as well as from other parts of the state. The two-day tech-fest witnessed exciting events from Robotics like Terrainz, Robo War, Aquatron, Line Follower, Gaming events like NFS, FIFA, CS, AlgoGeeks the coding event, Momentika the photography contest and exhibition, Quiz & Junkyard. The events Robo War, Aquatron & Multi Terrainz along with the gaming events were the most attracted events and got the maximum number of participation.

Swami Vivekananda Centre for Positive Thinking
By ARIJIT BANERJEE

“We are what our thoughts have made us. Therefore, take care of your thoughts. If you have to think, think good thoughts, fill the brain with good, pure thoughts” - said the Swami. Has been revered truly by a great poet before a philosopher, “If you want to know India, read Vivekananda, in him everything is positive, nothing is negative.” When reader walks through the avenues on reading the words of him he/she will have the same feeling. The reader will feel tremendous, all conquering strength within. With that thought in mind; to empower one with the power of the self, Swami Vivekananda Centre for Positive Thinking – NITMAS Chapter, started its journey on 11th September 2013 (to remember Swamiji’s address in the Parliament of Religion at Chicago in 1893), with an afternoon meeting at its campus’ open-air stage. This year is also the 150th birth anniversary of “The Hindu Monk”. The thought of formation of such a forum was nucleated in the mind of the Advisor, Department of Mechanical Engineering, Prof. Asim Kumar Bose, a well known academician with a legacy of founding such forums wherever he served during his teaching career. He is the chief advisor of the centre. The centre was inaugurated and the meeting was presided over by the Principal of the institute Prof. Amitabha Sinha, the chief patron of the centre, in presence of few members, students and staffs. The centre then onwards has organised a seminar on the topic “Positive Thinking as Envisaged by Swami Vivekananda” on 19th November, 2013 at the same venue. In that seminar reputed preacher-monks from Ramakrishna Mission Ashrama, Sarisha, Srimat Swami Devarajanandaji Maharaj and Srimat Swami Susantanandaji Maharaj were invited. The programme started with an opening song performed by two first year students. Few other students and staff members also participated. A library, situated in SB-III, was inaugurated by the chief guest Srimat Swami Devarajanandaji Maharaj. The audience received some words from real experience of how to actually be positive in the diversified situations of life. The programme ended with a closing song from two students from first year.

As a community service, the centre organised a sports competition for the children of the local village Jhinga, Sarisha on the birthday of Swami Vivekananda, January 12, 2014. Girls and boys under the age of 10 years participated in several sport events. They were given breakfast and lunch in a NITMAS hostel. Later, seventeen girl students of NITMAS participated at the youth conference organized by Ramakrishna Mission Ashrama, Sarisha on February 15, 2014.

Summer Schools will be organized by the Centre for Development in Embedded Systems & VLSI Design at NITMAS for the students of Electronics and Communication Engineering during June 25, 2014 – July 11, 2014: (1) Summer School on Embedded System Design Using Microcontrollers and FPGA, – this school will unveil the mystery of embedded systems to our students, and will cater the growing market of embedded system and its demand for skilled engineers; and (2) Processor Architecture and System-on-Chip Design, – this school will target those students who are willing to design various ICs used by the application engineers to manufacture new products.

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