

# ENGMEDNEWS



## Study Abroad Program at MSRIT

- 15<sup>th</sup> to 17<sup>th</sup> March 2011

Study Abroad Program was initiated by two professors, Dr. Raji Sundararajan and Dr. Gail Farnsley from Purdue University in association Dept. of Medical Electronics, MSRIT Bangalore. A team of 6 students and the above-mentioned professors from Purdue University visited Bangalore under this program. The event was organized by Dept. of Medical Electronics MSRIT.

This program provided the visitors a fantastic learning opportunity right from technical interactions to a glimpse of Indian culture and South-Indian cuisine. The two-day event was flagged-off with unique dance invocation from Ms. Anusha (VI Semester Medical Electronics student). A brief introduction of the visiting team followed the invocation. After a brief tea-break visitors were introduced to healthcare related projects carried out by final year medical electronics and computer science students. A stunning Kathak performance by Ms. Jambagi Sneha (VIII Sem Medical Electronics student) enthralled the visitors to give a break from the technical sessions.

Two service-to-community projects being carried out by Rotary Club (Bangalore Chapter) was the focus of afternoon session. First among these was visit to Artificial Limb Centre at M S Ramaiah Memorial Hospital, where the visitors got an overview of manufacturing of Jaipur foot. Next was the visit to Dialysis Centre at P D Hinduja Sindhi Hospital, where the dialysis is provided at a subsidized cost to the needy and the dialysis units are provided by Rotary Club. First day ended with a city visit.

Second day was marked with visits to Philips Innovation Centre at Manyata Tech Park and Iscon temples. At Philips the visiting team was exposed to Cath-Lab (Simulation of Catheterization Laboratory), Ultrasound machines, CT-machines (testing and simulating) and life-style test and certification centre.

- **Supriya Babu** <supriya@msrit.edu>



Visiting Team and Organizing team with Vice-Chairman, Mr. M R Seetharam

### Editorial



**Greeting  
BMESI  
Community**

Networking with community & ties with Industry - academia activities empowers the faculty, students to become intellectual explorers. This Issue covers ICBME 2011, report on EU funding opportunities and study abroad program. Hope the readers will find them interesting.

*Bheemsain Rao*

### In This Issue

Pg.1

- Editorial
- Study Abroad Program at MSRIT

Pg.2

- ICBME 2011-Call for Papers
- Plantar Pressure Measurement for Clinical Diagnosis

Pg.3

- EU Funding Opportunities -Seminar
- Students' Corner: Nanotechnology and Nano-Medicine

Pg.4

Forthcoming Events

## ICBME 2011-Call for Papers

Human body is an engineering marvel endowed with life. Biomedical Engineering involves applications of engineering to assist doctors in healthcare and scientists in life-science-studies, towards enriching our knowledge and serving humanity. There is a long way to go towards unraveling the mysteries associated with the human body & life. Here is an invite for submission of original work describing technological advances and research results in this fascinating & multidisciplinary field, to International Conference of Bio-medical Engineering (ICBME) 2011 – organized by the MIT, Manipal and the Biomedical Engineering Society of India (BMESI) – at MIT, Manipal University.

The topics of interest include, but not limited to: Medical Imaging, Medical Image Processing, Image guidance during intervention, Physiological Signal Acquisition & Processing, Medical Instrumentation & Devices, Telemedicine, Biosensors, Biomechanics & Biodynamics, Biomaterials and artificial organs, Engineering-Applications in Life Sciences, Medical Applications of Nanotechnology, Kinesiology & Sports Medicine, Healthcare (including Medical & Clinical) Informatics, Haptics in Biomedical Engineering, Biometrics.

### Important Dates:

Manuscript-submission: June 4, 2011  
 Communication of Decision: Sep. 2, 2011  
 Submission of final manuscript: Sep. 24, 2011  
 Pre-conference Tutorial: 8–9 Dec., 2011  
 Application for the Tutorial: Sep. 10, 2011  
 Communication of Acceptance: Oct. 10, 2011

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<http://www.manipal.edu/Institutions/Engineering/MIT/Pages/index.html>

## Plantar Pressure Measurement for Clinical Diagnosis

Various diseases causing abnormal pressure are Rheumatoid Arthritis, Diabetes Mellitus, Halux Valgus, Claw Toes and Leprosy etc. Pradnya N.Gokhale (Lecturer Biomedical Engg.Dept. Y.T.I.E.T., Karjat, Mumbai), came up with application of plantar pressure measurement technique to treat patients with such ailments. His objective was to design suitable footwear for people who suffer from deformities of foot as well as insensitive foot due to the loss of sensation of pain.

Anatomical deformities arise due to abnormal pressure distribution in the sole and can be satisfactorily dealt with by designing proper footwear so as to compensate for the deformities. The motive was to make footwear for insensitive foot so that they do not develop deformities due to high pressure. After a detailed study about the anatomy of the foot, standing foot, walking foot, gait evaluation and body weight transmission, normal static and dynamic pressure distribution in the foot, a system was designed.

The system has a thin piezo-crystal transducer which operates with simple and power efficient electronics. Appropriate sensors are also fixed in the shoe sole and which also sense the pressure applied on it. The output of the transducer is made to pass through several stages of amplification. The patient is made to wear the shoes in which the sensors are placed and related readings are taken. This system has many clinical applications.



Instrument Set-up



Measurement in Progress

- | Aishwarya Anand  
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## EU Funding Opportunities –Seminar

The European Business & Technology Center (EBTC) regional office was formally launched in Bangalore on 17th February 2011. The office was inaugurated by Her Excellency H.E. Danièle Smadja the Ambassador & Head of the Delegation of the European Union to India and Mr. Alessandro Barberis, President - EUROCHAMBRES, in presence of several other eminent delegates from EBTC, EUROCHAMBRES, EBG and diplomatic mission in Bangalore.

The Official Launch was kick-started by a warm welcome address by Mr. Poul V. Jensen, Director - EBTC, followed by opening remarks from Ms. Anandi Iyer, Chairperson, EBG India - Bangalore Chapter and a special address by Mr. Barberis. As the chief guest of the event, Mr. K. Jairaj, Additional Chief Secretary, Govt. of Karnataka delivered the keynote address. The event also witnessed, MoU signing between EBTC and Bangalore Chamber of Industry and Commerce (BCIC).

On this occasion EBG conducted a seminar on 'EU Funding Opportunities' at ITC Royal Gardenia, Mysore Hall which was well received by key personalities from the industries, institutions and media. Later on during the technical session, Dr. Raj Kumar Khatri Commissioner for Industrial Development and Director of Industries & Commerce, supported EBG's initiative and assured of guidance on behalf of the Govt. of Karnataka. Dr. Philippe De Taxis Du Poët, the Minister Counsellor and Head of Science and Technology at the European Union Office in New Delhi presented the EU Funding programmes through its flagship instrument the FP7. It was followed by success stories from Prof. Utpal Tatu from the Indian Institute of Science and Dr. Goutam Das, CEO, GoutamDas Consulting (ex COO Biocon-Syngene), an industry player. These presentations shed light on some excellent insights on how to identify the right calls, find partners, complete documentation and try to get success in achieving funding.

The seminar was very well complimented by all and was concluded with a question-answer session. The participants had a great opportunity to interact one to one with the delegates during a networking lunch later.

- Sachin Arora <sachin@iira.in>



Delegates from Left to Right: Rajini Samuel, Poul V. Jensen, H.E. Danièle Smadja, Alessandro Barberis, K. Jairaj and Anandi Iyer

## Students' Corner

### Nanotechnology and Nano-Medicine

Nanotechnology refers to the use of man-made nano-sized particles which has unique properties. The different types of nanoparticles allow them to penetrate cells and interact with cellular molecules which also have unique electrical properties and serve as imaging agents. So there is a broad spectrum of novel uses for nanoparticles, particularly in nanomedicine.

It has become the priority of the National Institutes of Health (NIH). Among the long term objectives of the NIH initiative are goals such as being able to use nanoparticles to seek out cancer cells before tumors grow, remove and/ or replace "broken" parts of cells or cell mechanisms with miniature, molecular-sized biological "machines", and use similar "machines" as pumps or robots to deliver medicines when and where needed within the body.

They can be carbon-based skeletal-type structures, such as the fullerenes, or micelle-like, lipid-based liposomes, which are already in use for numerous applications in drug delivery and the cosmetic industry. Colloids, typically liposome nanoparticles, selected for their solubility and suspension properties are used in cosmetics, creams, protective coatings and stain-resistant clothing. Other examples of carbon-based nanoparticles are chitosan and alginate-based nanoparticles described in the literature for oral delivery of proteins, and various polymers under study for insulin delivery.

Nanoparticle contrast agents are compounds that enhance MRI and ultrasound results in biomedical applications of in vivo imaging. These particles typically contain metals whose properties are dramatically altered at the nano-scale. Gold "nanoshells" are useful in the fight against cancer, particularly soft-tissue tumors, because of their ability to absorb radiation at certain wavelengths.

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## Forthcoming Events

- ↪ **2011 International Conference on Biomedical Engineering and Technology (ICBET 2011)**  
 4 to 5 June 2011; Kuala Lumpur, Malaysia  
 Website: <http://www.icbet.org/> ; Contact name: Conferences Secretary  
 All papers of ICBET 2011 will be published in the conference proceedings, and will be indexed by Thomson ISI Proceedings.
- ↪ **International Conference on Mathematical and Computational Biology 2011 (ICMCB 2011)**  
 12 to 14 April 2011; Malacca, Malaysia  
 Website: <http://einspem.upm.edu.my/icmcb2011>; Contact name: Ms Nor Yusniza Ma'arif  
 Mathematical Biology is an interdisciplinary research that focuses on the application of mathematics to biological systems. It spans all levels of biological organization and biological function, from the configuration of biological macromolecule.
- ↪ **Sixth International Conference on Ethical Issues in Biomedical Engineering**  
 1 to 3 April 2011; New York City, United States  
 Website: <http://www.nyas.org/Events/Detail.aspx?cid=6a4fb53f-9b09-41c0-b787-42cbc242d14c>  
 This 3-day conference will explore ethical issues associated with the controversial nature of some of the new developments in biomedical engineering, and discuss possible guidelines to be followed.
- ↪ **AMRITA DIABETIC FOOT CONFERENCE 2011 (A.D.F.C '11)**  
 6 to 7 May 2011; Kochi, KERALA, India  
 Website: <http://www.aimshospital.org> ; Contact name: DR. AJIT KUMAR VARMA  
 Talks & video demonstrations of Diabetic lower limb surgeries, Foot & ankle reconstructive surgeries by Podiatric surgeons from the US. Perioperative medical management of diabetic foot, diabetes & co-morbidities. Free paper presentations.

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**Members are requested to update their contact details with email Ids to the editor ([bheemsainrao@yahoo.com](mailto:bheemsainrao@yahoo.com)) to enable us to send you the e-version of engmednews and GO GREEN!!!**

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