

Guest Editorial

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2012 : IT Trends to Bridge Gap in Education

As 2012 sets in some of the recent IT trends can help education institutions to embrace them. This will help these institutions to connect with the students easily, proliferate the knowledge / technology in much easier way and also have their students trained in the industry required skills. Some of these trends should be used with boundaries around so that they are used in right way across the campuses.

Few of the 2012 trends which are sure to make it to Universities are

- Cloud Computing
- Social Media
- Big Data & analytics
- Tablets
- Context aware apps.
- Green IT

Some of these trends are part of Gartner's 10 key IT trends for 2012. Few of these can be used by Universities to connect with students, develop strengths in these areas by having students work on research projects in the above mentioned areas. This would fuel overall knowledge and innovation in the Universities and in turn IT sector of India. Here are some thoughts on how educational institutions / universities can leverage these technologies

Cloud computing (from Wikipedia) is the delivery of computing as a service, whereby shared resources, software, and information are provided to computers as a service over a network / Internet. Universities can run their labs over Cloud or students can work on software / applications or platforms on cloud. Amazon AWS as IaaS, Salesforce as PaaS, Zoho as SaaS are some examples.

Use of Social media / networking sites such as Facebook, Twitter, linkedin, slideshare can help Universities / colleges to connect with Students much easily. These sites help in exchanging / sharing class , project information, share teaching material and keep in touch with students.

The data collected in the Social media, blogs, mobile can be reused by colleges / universities to fine tune the curriculum, projects for IT industry. Since the data is unstructured and available across internal and external websites, Big Data / Hadoop & analytics will help in collecting this data and turning it into meaningful needs for education.

With advent of tablets Universities can reinvent themselves on how they can use this technology within colleges. Colleges can distribute educational content, solutions and courseware easily. Context aware apps will help students in gathering right approach, solutions to their projects and curriculum.

All the above trends including GreenIT will help colleges / universities and students to reinvent themselves and focus on the new trends to innovate, invest and interest students for brighter future.

Srin Kumar

From Chairman's Desk



The Impact of Accreditation and Rankings on Engineering Education

We are discussing whether *Accreditation Processes can serve as Change Agents in Engineering Education* in the forthcoming Global Engineering Deans' Council Conference in Beijing. Accreditation processes serve as both change agents as well as catalysts in Engineering Education, in particular, for promoting Quality in all academic systems and processes. Accreditation can be a driving force for change as far as Quality is concerned.

With particular reference to India, there have been several beneficial consequences of the National Board of Accreditation (NBA) and the National Assessment and Accreditation Council (NAAC) accreditation initiatives, for technical and higher education institutions, respectively. The accreditation criteria provide guidelines to the institutions for achieving Quality and Excellence, and, in fact, define the profile of an Institution of Excellence. For example, since the criteria demand that every institution should have Vision, Mission and Goals; industry-institute interaction; R&D..., every institution strives to incorporate these into its portfolio of policies, plans and activities.

In fact, the new NBA accreditation norms require the institutions to define a matrix of Program Educational Objectives and Program Outcomes, and demonstrate the correlation between the two in their academic programs – a move towards the Washington Accord system, and the Institutions are tailoring their systems and processes to respond to this requirement. This demonstrates that Quality can be driven through regulations and accreditation criteria.

Of course, there are other change agents, as well, such as, for example, the founding mandate, national and state policies, perspective plans, leadership, resources – human, physical and financial --, the ecosystems in the institution for creating and sustaining a culture of scholarship, quality, excellence, innovation, etc.

In her recent Book, *Rankings and the Reshaping of Higher Education - The Battle for World Class Excellence*, Ellen Hazelkorn points out that “Rankings are arguably having a more profound impact on higher education and the construction of knowledge.” “HEIs are responding to league tables and rankings (LTRS), which are having an impact or influence — positive or perverse — on institutional behavior, decision-making and actions”. “While HE leaders are concerned about the impact of rankings, they are also increasingly responsive and reactive to them”. “Rankings demonstrate the new environment of higher education, and act as a driver of change”. “The extent to which these changes are productive or useless is still controversial, but HEIs are worried about their impact on the reputation of their institution, individuals, and the country as a whole”

Prof. R. Natarajan

BITES Best PhD Thesis Awards and Reports Release Function

Date: 12th October 2011
Venue: MSRIT, Bangalore



BITES Best PhD Thesis Awards for the year 2009 were given away during a function organized at MSRIT on 12th October 2011. A distinguished jury chaired by Prof. S.S. Prabhu with Prof. KNB Murthy and Dr. Selvan as members adjudicated the awards.

Dr. Satish Babu, Professor, CSE Dept. SIT, Tumkur" received the award in Electronics and Communications category by Dr. Anandan, MD, Microsoft Research India

Dr. P. Santhi Thilagam, Associate Professor & Head, Dept of Computer Science & Engg, NITK received the award in Computer Science and Engineering category by Prof. S.S. Prabhu, Prof. IITB.

The awards carry a cash prize of Rs. 25,000/- and a certificate.

BITES and Consortium of Autonomous colleges are jointly working to create a benchmark curriculum for the four year UG CSE program based on outcome based education paradigm.

The curriculum development has proceeded in two phases. The first phase resulted in the definition of a program structure consisting of Institutional core, Departmental core, electives, and projects with credit loads assigned to each component. It also defined Program educational objectives (PEOs), Program Outcomes (POs) and has provided sample Course Level Objectives (CLOs) for reference. It also has a compilation of PEOs, POs of Top 20 US universities and also graduate attributes of Top 20 Australian, UK and Singapore universities

The first part of the work is complete and a report has been brought out by BITES which was released by Prof. S.S. Prabhu on this occasion.

BITES and Microsoft India collaborated to generate a Graduate attributes report which details knowledge, skills and attitudes which IT companies deem most desirable in an engineering graduate. This report can serve as a useful input to our academic fraternity to examine their existing curriculum and delivery methods and modify/redesign them to make Engineering graduates more **Industry ready**

BITES has also come out with a summary report of various activities conducted during preceding five years.

Dr. P. Anandan , MD, Microsoft Research India released the Graduate attributes report as well as the compilation of BITES activities.

Dr. Anandan delivered the BITES distinguished lecture on Opportunities available to faculty members to pursue their post doctoral work at Microsoft India.

What is New in the World of Information Technology

Crucial Advances in 'Brain Reading'

At UCLA's Laboratory of Integrative Neuroimaging Technology, researchers use functional MRI brain scans to observe brain signal changes that take place during mental activity. They then employ computerized machine learning (ML) methods to study these patterns and identify the cognitive state -- or sometimes the thought process -- of human subjects. The technique is called "brain reading" or "brain decoding."

In this study on addiction and cravings, the team classified data taken from cigarette smokers who were scanned while watching videos meant to induce nicotine cravings. The aim was to understand in detail which regions of the brain and which neural networks are responsible for resisting nicotine addiction specifically and cravings in general, said Dr. Ariana Anderson, a postdoctoral fellow in the Integrative Neuroimaging Technology lab and the study's lead author.

"We are interested in exploring the relationships between structure and function in the human brain, particularly as related to higher-level cognition, such as mental imagery," Anderson said. "The lab is engaged in the active exploration of modern data-analysis approaches, such as machine learning, with special attention to methods that reveal systems-level neural organization."

The data from fMRI scans taken of the study participants was analyzed. Traditional machine learning methods were augmented by Markov processes, which use past history to predict future states. By measuring the brain networks active over time during the scans, the resulting machine learning algorithms were able to anticipate changes in subjects' underlying neuro-cognitive structure, predicting with a high degree of accuracy (90 percent for some of the models tested)

In essence, the algorithm was able to complete or "predict" the subjects' mental states and thought processes in much the same way that Internet search engines or texting programs on cell phones anticipate and complete a sentence or request before the user is finished typing. And this machine learning method based on Markov processes demonstrated a large improvement in accuracy over traditional approaches, the researchers said

Source: <http://www.sciencedaily.com/releases/2011/12/111221140706.htm>

SDMCET is BITES New Institutional Member

On 23rd November, SDM College of Engineering and Technology, Dharwad (SDMCET) joined the elite club of BITES institutional members. BITES extends a hearty welcome to SDMCET on the occasion of becoming BITES institutional member and wishes good luck in all their future endeavours. We look forward keenly to network with SDMCET in our activities.