

Not just leopards

“It’s different,” went the tag line of a ketchup advertisement few years ago. You could say that about IIT Bombay, too. For starters, leopards enter IIT Bombay campus every now and then. One is not even beginning to talk about the oh-so-brilliant IIT Bombay students. We have already had an overdose of that already.

IIT Bombay is different in implementation of ICT from other educational institutions. And the difference is that technology implementation at other educational institutions is focused on merely improving quality of education at that institution, whereas ICT intervention at IIT Bombay has an added responsibility of improving quality of education throughout the nation.

Little wonder then that IIT Bombay has several projects of National Mission on Education through Information and Communication Technology (NMEICT) being managed under its aegis. The NMEICT, a Ministry of HRD, Government of India initiative seeks to extend the reach of education to millions of Indians through ICT and sees ICT not as a luxury of developed nations but as a necessity for developing ones.

The proof of pudding is in eating, they say. One just does not have to go far. IIT Bombay is the principal partner of the ICT Mapping project which seeks to enable better implementation of ICT in education at institutions of higher learning through comparative study, incisive analysis and wide dissemination. Professor Kannan Moudgalya is actively associated with ICT Mapping project.

Professor Kannan Moudgalya is also associated with Spoken Tutorial project. The Spoken Tutorial project is also an initiative under NMEICT of Ministry of HRD, Government of India. The Spoken Tutorial project teaches various software skills through audio video tutorials in most Indian languages. The audio video tutorials are available free of cost and reduce learning time significantly. Almost 300,000 students have taken advantage of audio video tutorials through more than 10,000 workshops.

Professor Kannan Moudgalya is also actively involved in the FOSSEE project, once again an initiative of NMEICT. The FOSSEE (Free and Open Source Software for Education), seeks to promote use of open source software in education. Utilising Free and Open Source Software can not only save billions of dollars of precious foreign exchange but also better equip India to leverage its cost arbitrage and demographic dividend by reducing cost overheads of proprietary software.

Professor Kannan Moudgalya was earlier associated with CDEEP – Centre for Distance Engineering Education Programme. One of its major activities of CDEEP is to transmit IIT Bombay’s regular courses live via Satellite and through the Internet. The courses offered through CDEEP are taught by IIT Bombay faculty for IIT Bombay students and are transmitted live from IIT Bombay classrooms. Indeed in some of the modes it is possible for engineering colleges receiving CDEEP courses

to not only ask questions but also participate in discussions with IIT Bombay students and access exam papers, their solutions and other instructional material.

IIT Bombay is honoured to have Professor Deepak Phatak as one of its faculty members. Professor Deepak Phatak is recipient of Padmashree award. IIT Bombay has not only used technology to reach out to students, but also to train faculty members in engineering colleges through its “Ten Thousand Teacher Training Programme”. This method of synchronous education has been developed at IIT Bombay, under the leadership of Professor Deepak Phatak.

IIT Bombay is currently exploring Massive Open Online Courses (MOOCs) through edX a platform developed by Harvard and MIT. However it is early days yet and only few courses are being offered through edX. Professor Deepak Phatak is closely associated with MOOCs.

Charity begins at home, they say. IIT Bombay has not only used technology for betterment of education throughout nation, but is using technology for its own governance and teaching and learning. Indeed even in this area ICT intervention at IIT Bombay is commendable.

In the area of governance, IIT Bombay has been using ICT since at least few decades. Almost every area of governance at IIT Bombay is computerised. Accounts, Admissions, Exam Timetabling, Grades, Transcripts, Grades, Payroll have been computerised.

Other areas benefiting from computerisation are budgeting, expenditure, payroll, purchases, HR, hospital, mobile registry, research management, campus security, biometric access control and staff attendance have been computerised.

These disparate applications have been integrated. The applications used for various areas have been developed in house at IIT Bombay in its software development cell. **IIT Bombay is now migrating to SAP for its governance requirements.**

The GATE examination for admission to post graduate courses is also computerised and serves almost 20 lakh students. Indeed technology is not only used for objective exam testing, but technology is also used for partial subjective paper evaluation for CEED – Common Entrance Exam for Design, for admission to Design courses.

IIT Bombay has implemented Moodle for Learning Management System. Moodle is used for lecture notes, assignments, class interaction and online examinations. Moodle can also be used for online exams.

IIT Bombay has state of art fibre optic and cable network connecting all hostel rooms and residences. There are many wireless access points. However on flip side, while IIT Bombay is using ICT heavily for improving education across nation and in its own

governance, ICT intervention in IIT Bombay courses administered for IIT Bombay student is slightly slim.

Yet some courses are partially conducted through video lectures. Some staff members do experiment with flip classroom. Standard teaching and learning technologies are used by some faculty members for some courses, if only partially. Perhaps use of technology is not perceived to be useful as it is seen as an obstacle in direct interaction between faculty and students.

There are several challenges in implementation of ICT at IIT. These challenges are seen both in the area of teaching and learning as well as in area of e-governance.

In the area of teaching and learning, the chief challenge in recognising e-learning as core activity. There is need for steady budget for recognition of e-learning as core activity. There is need for steady budget for R&D in distance education technologies, pedagogy, office space and staff. There are issues of illegal downloads and need for sensitisation and value inculcation. There is concern that social interaction between faculty and students is reducing due to implementation of ICT.

There are several challenges in the area of E-Governance too. Residential campus such as IIT Bombay brings its own set of challenges. There are issues in the area of management too. These are in area of skilled manpower and inadequate compensation. Getting specialised staff in domain specialisation is difficult – for user interface development, database management, networks, system administration or testing. There are issues of person heading ICT and the reporting structure.

IIT Bombay has several recommendations for Ministry of HRD in area of ICT implementation. Firstly there is need for NIC like department for Universities. A central cloud for campus ERP could be explored with each institution having its own private space. There is need to codify best practices in ICT. There is need to compensate ICT staff well, treating it as an essential service. There is need to explore Cloud for University like Amazon EC2. Finally there is need to create country wide faculty application portal for faculty recruitment