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NPTEL : A best e-learning source for Engineering students

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Abstract *- Due to fast development of information and communication technology, student and faculty needs relevant and current information as on time, they quickly adapted into print form to electronic form in current scenario. More demand of digital information leads to remarkable position of increase in publication sector and usage of EIS in all discipline especially science and engineering. In view of more e-resources demanded, NPTEL is an Indian portal dedicated and provides technical e-content to solve this issue of one side increased e-resource demand and other side deficiency of qualified faculty. This paper studies the impact of NPTEL on student and faculty in engineering colleges of Thiruvallur district, Tamil Nadu. It focuses out the variations in perceptions and preferences of user using NPTEL. It is found that majority of respondents accessed NPTEL for their teaching and learning purpose. Most of the respondents opined that NPTEL is very useful for teaching and research purpose.*

Keywords - Electronics information, NPTEL, Higher Education Colleges, E-content, Video courses.

Introduction

Indian economy is growing at a fast pace presently. Sustaining this growth requires technically trained professionals in large number. It requires providing education and training to population in increasing number. The technological advancement can be of great help in this regard. Studies needs to evaluate Technology Enhanced learning, with particular reference to NPTEL - a portal dedicated to technical e-content(video/web) These programs fulfilled the gap between the user and subject expert from various places from major Indian technical institution. One side short of subject expert in engineering and technical area and other side user needs are increased toward the digital form of information. This NPTEL video/web course program is helped to the faculties and student in the field of engineering and technologies for stunts and faculty.

NPTEL:

NPTEL is an acronym for National Programme on Technology Enhanced Learning which is an initiative by seven Indian Institutes of Technology (IIT Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras and Roorkee) and Indian Institute of Science (IISc) for creating course contents in engineering and science. NPTEL as a project originated from many deliberations between IITs, Indian Institutes of Management (IIMs) and Carnegie Mellon University (CMU)

during the years 1999-2003. A proposal was jointly put forward by five IITs (Bombay, Delhi, Kanpur, Kharagpur and Madras) and IISc for creating contents for 100 courses as web based supplements and 100 complete video courses, for forty hours of duration per course. Web supplements were expected to cover materials that could be delivered in approximately forty hours. Five engineering branches (Civil, Computer Science, Electrical, Electronics and Communication and Mechanical) and core science programmes that all engineering students are required to take in their undergraduate engineering programme in India were chosen initially. Contents for the above courses were based on the model curriculum suggested by All India Council for Technical Education (AICTE) and the syllabi of major affiliating Universities in India. Indian higher Education Report 2015 observes NPTEL as "a model for technology enhanced learning".

The Ministry of Human Resource Development (MHRD) of Government of India is the only funding agent and owner of this NPTEL Project. For the first phase of development of NPTEL, MHRD invested a huge amount for the three years development period from June 2003 till June 2006. Due to the complexity and the heterogeneous nature of the partner institutions with respect to multimedia and video production capabilities, the first phase of project development was completed in June 2007. In addition to this NPTEL project, MHRD has developed a separate digital library project which is independent of NPTEL. In addition, MHRD's Indian Institutes of Management have been provided additional funding for distance education in core areas of management, which is again independent of NPTEL. Seven IITs and the IISc have been working together in Phase I of NPTEL to develop Web and video-based material for basic undergraduate science and engineering courses in order to enhance the reach and quality of technical education in the country. In order to facilitate the distribution of the course material, two modes of operation have been suggested, namely, digital video lectures of courses and Web based courses. 110 video based courses and 129 Web based e-courses have been designed and implemented in the NPTEL for distribution to Institutions in India by December 2007. The courses have been made available from July 2006 as and when they are complete with video lectures being broadcast through the 'Eklavya' channel provided by 'Gyan Darshan' ('Door Darshan' Television, Government of India enterprise), the education service provider of Government of India. These Web courses are currently available through the official NPTEL website http://nptel.iitm.ac.in. Efforts are underway to provide free access to video lectures through Google-YouTube as video-on-demand for anyone having broadband connectivity.

Content

The disciplines covered are Civil Engineering, Computer Science and Engineering, Electrical Engineering, Electronics and Communication Engineering, Mechanical Engineering and Core science, Management Studies and Language courses that all engineering students are required to take. The course contents are available freely on the Internet (URL: http://nptel.ac.in). The courses have been prepared in two formats, namely as web based lectures (slides, chapters or modules with animations), or as a sequence of thirty to fifty video recorded lectures of one hour duration each. They are modularized in such a way that a large part of each course covers basic learning materials for different University syllabi throughout the world on that topic. The contents of video lectures are available as video streams on demand through the generous offer

of free web hosting by YouTube : http://www.youtube.com/iit). The video archive that has been created through this project is the single largest open video archive containing contents in engineering and technical courses at the undergraduate level anywhere in the world. Contributed by more than 200 faculty members from all partner Institutions in this project, it is also a unique exercise in which eight competing Indian academic institutions of international repute have worked together to deliver a common cause, namely, improve current engineering education in India and at the same time, provide for any student in the world to undertake a systematic and self-study of engineering concepts. Approximately 5,000 one hour video lectures have been recorded under this programme. More than 3,500 hours have been made available already through the above site, with the rest to be uploaded within the next few months. Many different styles and pedagogies have been accommodated using a few simple guidelines for faculty contributors to adopt in content creation through the video and the web. The web based contents are already registered with Google Analytics and the statistics provided by Google is being used to study the effectiveness of this programme

E-Learning

- video lecture,
- specially prepared reading material that can be downloaded/printed
- self-assessment tests through tests and quizzes and
- an online discussion forum for clearing the doubts.
- Steps have been taken to enrich the learning experience by using audio-video and multimedia
- and state of the art pedagogy / technology. A. K. Ray observes that “NPTEL is by far the
- largest high-quality OER for UG and PG level engineering education in the world”.

Salient Features of NPTEL

- The copyrights of NPTEL are owned by the MHRD, IITs / IISc and the faculty
- The focus areas of NPTEL project are i) higher education, ii) professional education,iii) distance education and iv) continuous and open learning.
- In India we have a shortage of fully qualified and well trained teachers in technical education. Hence, it is important forinstitutions like IITs, IISc, NITs to disseminate teaching / learning content of high qualitythrough all available media. NPTEL would be this direction and will use technology for dissemination of course content.
- NPTEL contents can be used as core curriculum content for training more teachersfor effective implementation of highereducation in professional courses.

- A large number of students who are unable toattend scholarly institutions will have access to quality content through NPTEL

- All those who are employed in industries and who require continuous training and updating their knowledge can benefit from NPTEL courses.

- MHRD encourages faculty of IITs / IISc to convert their electronic content to text books in various engineering and science subjects.

- Except few courses, the rest of the materials are likely to be distributed under a Creative Commons license in future.

Conclusion

NPTEL brings all the best teachers in the country under the one umbrella of NPTEL and make the courses available to the user community freely to face the challenges of education in India posed by the unprecedented and rapid economic growth. There is already a move to create open virtual laboratories in the Internet for engineering subjects initiated by IIT Delhi to forge strong ties with major academic initiatives worldwide like MIT OCW, Commonwealth of Learning, Digital Library initiatives etc and with industry for developing new technological tools for learning and dissemination. When the second phase is completed, NPTEL becomes the largest video repository of technical lecture courses in the world. If the goals of NPTEL (educate, get educated with technology and prosper) are fulfilled then this is one of the most significant achievement in the field of e-learning not only in India also worldwide.

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