

Abstract for PCF6

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Website – a major ICT tool in ODL for providing quick information and learning environment to masses

Introduction

In the age of modern ICT, everybody wants to get information easily and quickly i.e. everybody wants to be updated with latest information. It is in fact the need of the society and especially the students who have to stand and establish their career in this competitive society. The prime objective of the Universities/Institutions providing information through distance education mode, is to reach large number of students distributed in various geographic locations.

Websites are playing a very important role in achieving such targets. In this paper, a web enabled Education Model is proposed. As Indira Gandhi National Open University (IGNOU) is the largest University providing education through distance mode, the proposed education model is designed keeping in view its education scenario. However, this can be implemented for any education institution with minor changes. As IGNOU is pioneer in distance education delivery in India and abroad, the website becomes the most important showcase for presentation and distribution of information to students, faculty, authorities, researchers and others.

Objective of the Study

To design an ICT based Web enabled Education Model in a networking environment using shared databases to provide learning environment for students and information management platform for authorities/ students in a computer network environment which can be implemented through website via Internet .

Methodology

In an educational institution, there are number of departments working in coordination with each other to serve the students community. This becomes much more important in case of institutions imparting education using ODL. The major steps of the proposed model are:

1. identification of hardware and software requirements for institutional setup

2. analysis of various types of inputs from students and other sources, their codification, validation and storage in a database.
3. identification and designing of databases and web enabled dynamic applications depending upon organization's need
4. studying and incorporating existing methods, processes and their incorporation in the databases and network related security issues
5. sharing of databases, grouping privileges and training to staff

Conclusion

As websites are heavily accessed by student community, faculty and others these days, more and more information on websites will further strengthen their relevance and help in students learning process. Sharing the database allows students to get fast, detailed and updated information in minimum time.

In proposed model, the add-ons services will certainly help students learning process and create interest in their courses. Such a model is required for a large institution scattered over large geographic locations. This will make them more techno savvy. Also, other users like researchers, visitors will also information in pursue their studies. The faculty will also be enthusiastic to interact with students via various mediums like SMS alert, discussions, e-mails etc. and to assess gap areas.

Introduction

Websites have become the tools for projecting information, administration, managing resources and programme management for a distance learning institute. As the student's strength is large in distance learning environment, the electronic media has a vital role in providing e-learning environment to students and management facilities for others. In this paper, an ICT enabled web-based education model is proposed which enables academia, administrators, staff, students, researchers, visitors and others to facilitate e-learning and accessing administrative information sitting at their computers.

As in ODL environment, the number of students are large and in order to provide them a uniform and fast learning environment, the ICT plays a major role these days. Indira Gandhi National Open University is the largest institution in India for imparting education through distance education mode. It has a network of 60 Regional centres and more than 2500 Study centres in India and abroad with 450 programmes on offer with an enrolment of about 4 lakhs students every year including Fresh admissions and Re-registration. However, few regular programmes have also been launched recently. To manage and meeting the requirements of this large number of students, a web enabled education model is proposed which will help students to manage their course of study themselves, academics to manage their programmes themselves and others to access most of the information on just few clicks.

Methodology

The proposed ICT enabled web-based education model is designed to serve the students, faculty and others in most effective way. IGNOU is the largest distance education University in India and abroad and have good capacity building in usage of ICT in education. Any ICT based model developed can be used as a launching vehicle for other distance education institutes to follow. Hence, a case study of education scenario in IGNOU is taken for model development.

As IGNOU has already a number of the websites running through its Servers and a well established network premises with a network of more than 1000 nodes in its LAN at Head Quarters, New Delhi. Few of the popular websites are shown as below:

S.N.	Website	Description
1	www.ignou.ac.in	University's main official website i.e. reflection of the Univeristy
2	www.egyankosh.ac.in	Course contents ,Vitrual classes, Online exam
3	www.ignouonline.ac.in	View broadcast channels, Online programmes, e-learning content,
4	www.ieg.ignou.ac.in	IGNOU WIKI
5	www.iocg.ignou.ac.in	IGNOU Open Course Guide having details of programmes and courses launched by the University
6	www.ignoustudent.ac.in	Information for students through famous Students Zone link

Among all, www.ignou.ac.in is the most popular website among IGNOU community. Hence, websites need to be equipped with more and more deliverables to reach the students as they are widely used by all people.

The first step is to identify the hardware platform available and its upgradable capacities. Because an efficient hardware and networking platform is the basic requirement for the implementation of a network based system and hence the proposed system. The high-end servers (SAN, Blade) are required at head quarter with high Internet broadband bandwidth network (which IGNOU has at present). The hardware at Regional centres also needs to be upgraded so both can be coupled for data processing (i.e. Server and Broadband connection(present at all Regional Centres)). The existing manual and computerized system is to be analyzed. Various input and output documents and their types need to be studied and related databases are to be designed. As the raw and first level information is available in standard forms and in many formats (as shown in Fig. 1). First step is to arrange this in suitable form to make it available as input information which can be stored in a database. The information needs to be codified, validated and authenticated using formal /anticipated processes. After identifying the major databases for storing related information, these databases can be implemented in a distributed fashion and made available for users to use. Various users can be categorized with different privileges like staff, officers, administrators, visitors, students, academics, researchers etc. depending upon their needs and usage. The established processes, methodologies for implementing various programmes/courses are to be identified and codified in a web enabled environment to process the data for different needs of different users. Different web enabled dynamic Applications can be created to meet different requirements of wide range of users especially for the students so that the updated information is available to students/ users.

Databases to design

1. Admission

Admission data , change of address, change of electives, received from Regional centres gets consolidated here and processed

2. Examination

Assignment data, practical/ project data received from Regional centres, term-end data gets processed here to produce results.

3. Regional Centre

Regional/ study centre details, counselor details, counseling details, Admission, assignment data is entered here.

4. Programme/ Course

Contains programme/ course details like duration, fees, faculty

5. Audio/ Video programmes

Information about course related audio/video programmes in audio/video CDs are recorded

6. Main

Contains general information about the institution, rules, tenders, MOUs, projects..schools, divisions, faculty specialization,..

7. Study material dispatch
programme/course wise Dispatch details for various sessions are stored here.
8. Library
Online database of library books
9. Inventory
Inventory details like computer details, furniture etc. at Head quarter and Regional centres are stored here.
10. Online Training
Training details for various professionals, counselors, and others
11. Campus placement/ Alumni
Details of passed students and seek placement through University are stored here.
12. Students Grievance Redressal Forum
Students queries are stored, forwarded to respective departments, and online submission details etc. are stored here.

The information to be stored in above databases are shown in Fig.2 briefly. In other words, more related information can be incorporated in related databases at the time of its creation. In case of major change requirements, the databases can also be modified. But the practice of changing the database design frequently is discouraged for data integrity and security reasons.

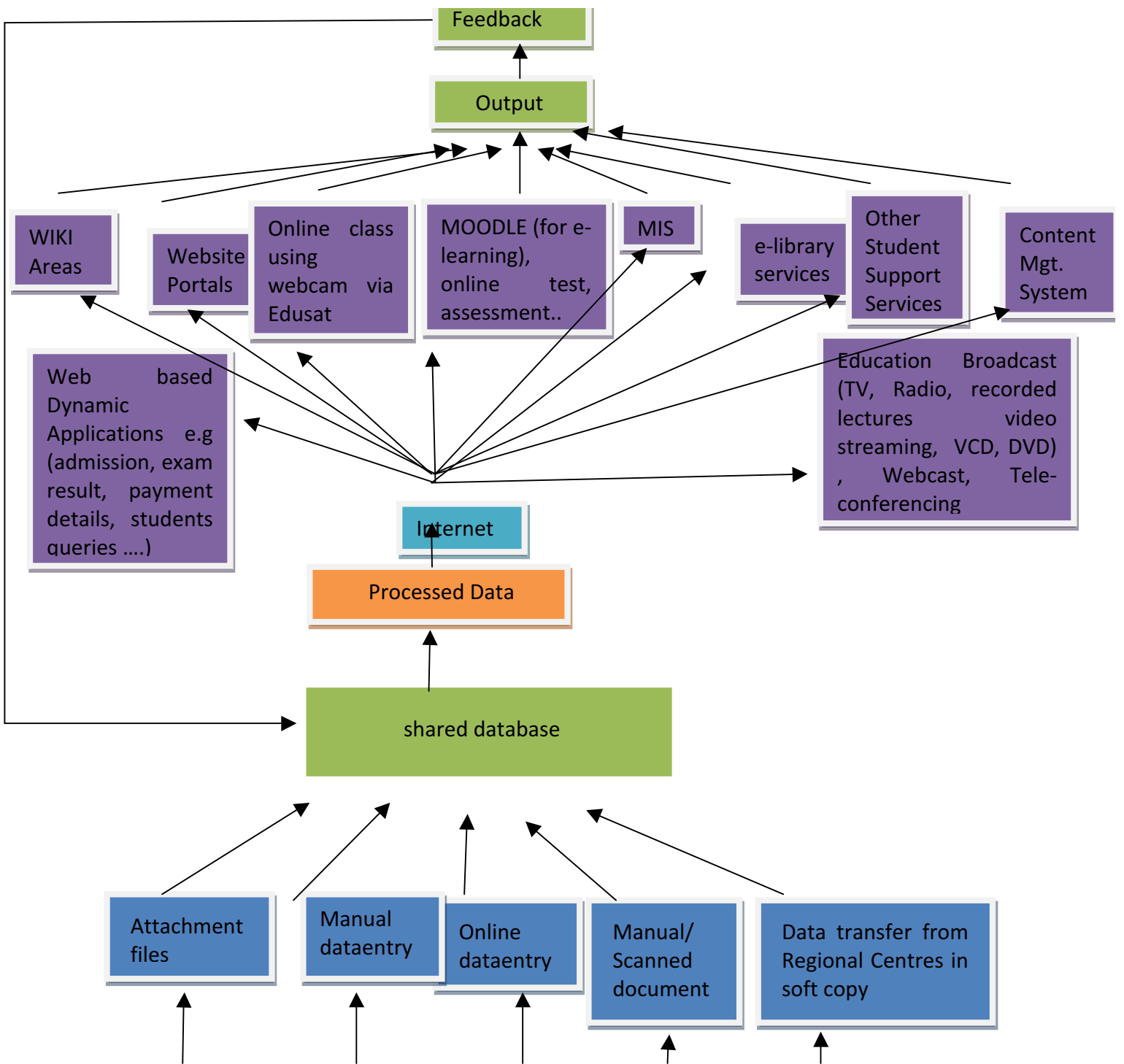
Fields required to access common shared Database

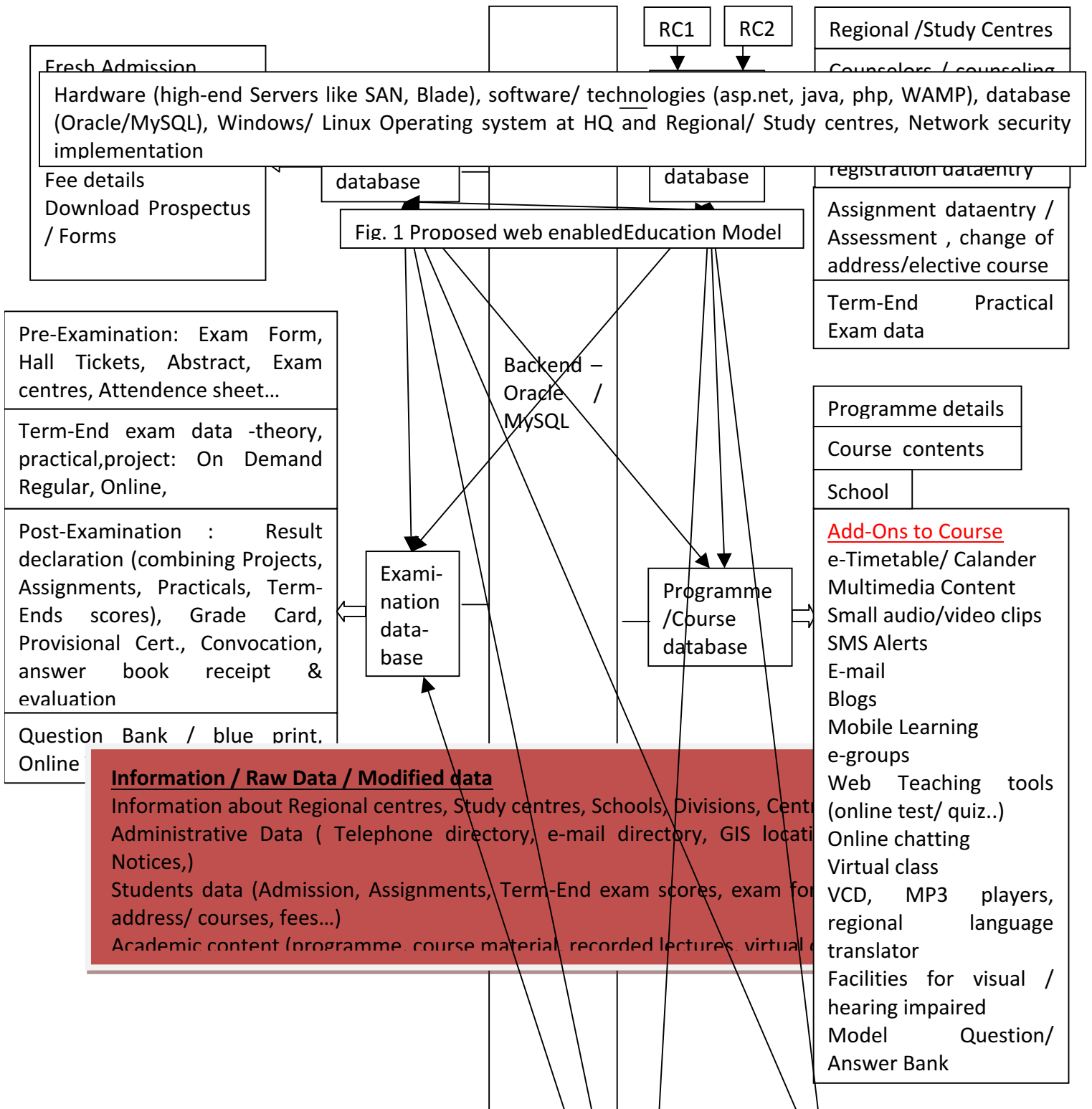
Enrolment No.
Programme Code
Course code
Year of enrolment of student
Regional centre code

Users of Database

Visitors
Students
Faculty
Counselors
University's non-academic staff
University's staff at Regional centres and Study centres
Researchers

Few outputs which are the outcomes of the dynamic applications are displayed in Fig.3. The static information like information about University authorities, Power delegation, University Acts etc. however is displayed through websites, WIKIs at appropriate places.





Payment : Evaluator, Paper setter, dispatch letter, Exam centre
Fees : Draft, Online, bank challan
Download Forms , Question paper, Assignments, Exam

University, School, Division, centre , cell, Regional / study centre details..., other Forms, RTI, Circulars, Notifications, Flash News, Tenders, Recruitment, Projects, workshops , Newsletter..

Main data-base

Study Material dispatch database

Inventory database

Campus placement/ Alumni database

Forum

Output

Programme / Course, Assessment, Evaluation, Examination Results, online test and online evaluation for type exams, Flash News, Messages, Circulars, Downloads, Standard Forms, Information, Study material dispatch details, Entrance exam results, Question line Viva exam, Convocation, Feedback....

Fig. 2 : Shared databases

Fig. 3 : Outputs from shared databases using web based applications

The **Admission, Exam, Regional centre** database are tightly coupled and act as integrated database to process the data as input from respective database (as shown in Fig.2). There will be a frequent movement of data among all these three databases. The shared databases are mostly accessed for accessing information with limited updation. The integrated database are crucial and highly dynamic where data processing across the database is very high and under high network security.

For creating Learning environment, a Moodle can be downloaded from Internet as so many are freely available or can be designed afresh. This can be customized to serve as an LMS depending upon the requirements of the course to provide an e-learning environment. Integrating Moodle with the Add-Ons facilities as discussed in Fig. 2 will help in creating a better learning environment for students. The academics can add various features from time to time to make the course content more informative and interesting. The video clips from Youtube on Internet or other sites can be integrated for better programme/ course delivery. The add-ons like SMS alert, e-mail, discussions, online test, online evaluation can be added to

programme/courses to create programme more interactive and will stimulate students to become more conscious towards their studies.

The information is made available to users on Internet using the web applications. The major advantage of web enabled applications is that the information can be updated in the database any time by authorized users and is made available to all users uniformly irrespective of their location and with ease too. This avoids data inconsistency and data errors, as data is validated at each step before updation. Hence, quick results can be viewed even for complex queries. In interactive applications, faculty can record the responses and interact with students. The advantage of this system is that faculty can the constantly manage the tempo of students. The financial implications on users is also not much as Internet access is quiet cheap and is in the affordable range for most of the users in our society.

Websites/ WIKIs/ Moodle in conjunction with a common shared databases in networking environment can be used effectively for providing and managing administrative and academic support to students and others as well. So websites, WIKIs/ Portals are the front-end and the shared database in Oracle or MySQL environment is linked with them at the backend to provide timely and structured information to students and others. This platform is strong enough to provide query responses millions of students in minimum time. This will help academics to monitor the students activities and constantly envisage to improve upon them. The GUI based environment with easy navigation links helps to find more information in less time with minimum efforts.

Website usage for accessing administrative information

It has been observed that most of the students use websites/wiki and other web based applications for information searching. This includes their admission details like examination results, assignments scores, fee, hall tickets, allotment of study centre, change of course /address etc..as shown in Fig.2 & Fig. 3.

The most interesting part is that whenever a new link is provided on the website (depending upon the seriousness of the information) , a large number of students starts accessing from the very next moment. One can store the students access details and other response details in the database for monitoring purpose.

Website usage for enhancing Learning environment

The website / web portals are reservoir of information. The students need to be motivated to use these reservoirs for learning purpose also. This will help them to keep pace with the scheduling of the programme/course. This will enable to develop more learning skills and deeper study of the course contents. The add-ons (as shown in Fig.3) will help in enhancing learning environment both academic and technological. The students are encouraged to navigate and learn deeper information.

The programme/course specific groups of students can be made so that they can be e-mail specifically and their responses can be studied/clarified. The SMS alerts can be sent by academics to study a particular topic. The 2-way interaction may allow students also to SMS the faculty to clear their doubts. Also, SMS has become very cheap. Useful links/ references can also sent to mobile phones which students can click to get the information as most of the mobile phones has the option of web services.

Likewise specific information can be sent by administrators using SMS to specific target group (programmewise, sessionwise, coursewise) like reminders about counseling, results information, important dates/ message etc. This will make students feel that they are personally in touch with faculty and the University authorities.

The entire activities related to their course can be categorized and presented in calendar by the faculty. The e-calendar will allow students to just click to know schedule of entire activities for each course e.g. desired link for online course contents, audio/video clips related to that topic, related Assignment, Model questions with answers.

The discussion forums and online chatting environment on website allows students, faculty and others to share their knowledge, discuss their opinions not only on their course contents but on other topics of general interest too. But this needs to be monitored to avoid its misuse.

The blogs are also a good platform to invite students, faculty and others to share their views and discuss about the course topics and other topics. This way students show much concern towards the course learning.

Web enabled applications provide a uniform learning environment to all the students and others. The teachers and faculty are now much closer to the students using virtual classroom on Internet. The online study material can be made available to students for download. Students can chat with faculty to clear their doubts using online chat/ discussions. Online tests and online evaluation will further improve students interest to be more interactive about their studies.

Conclusion

The main advantage of putting information on website is that both Open distance learners and online students can take the advantage of this model for learning. Also the information can be linked and changed in effective manner easily just by simply shifting the links at many places. This will form a good governance, management and learning system. Individual regional centres can now update their respective in a common database and anybody can see the consolidated results at any point of time. The add-ons to programme/ courses will help in designing interesting and communicative study material to students. The main idea is to engage students in learning process more and more by linking graphic, audio, video contents and some social networking platforms where students, faculty, experts can share / discuss their academic issues and solve their problems.

However, students are more frequently using websites for their administrative issues i.e. Admission and Examination related issues. The information updated by various authorities will be available to students at any point of time in the proposed system. The usage of academic and e-learning content on websites with some more integration with ICT tools will be an added curry for students in the learning process. The need is to make them more aware about the usage of academic content and academic facilities available on website

so that they are more closely attached with faculty and their fellow students using discussion forums, chat, group e-mails, mobile learning and SMS facilities.

This is the need of the hour to use technology for learning, gathering knowledge and information especially for students in distance education scenario.

The proposed education model will help the University's service agencies like Regional centres, Study centres, Schools, Divisions, Centres and Head Quarter to work in coordination and with the latest availability of updated information. The students will also ease as they need not to run from place to place either physically or on websites(s) to search the required information.

Limitations of in using technology

In any system, there is always a scope of improvement. The additional requirements of students and others can also be incorporated in the system, in case not disturbing the other components of the system. Also,

1. Not all the users/ students are using ICT for their study or for accessing other information due to geographic/ financial conditions.
2. Sometimes the system may get slow for a while when large number of users start accessing a particular link. But the system administrator may balance the load shortly.
3. At times, video streaming also gets slow and distracted videos are displayed.
4. The infrastructure cost is also high for small organizations.
5. Proper backup of database and related files are required to recover immediately in case of disaster.
6. Few users who are not more technology savvy may hesitate initially to get benefit out of.
7. Network security issues are to be taken seriously to avoid risks.

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