

Design and Development of Campus Wide Information System (CWIS) through Outsourcing at Kalyani Government Engineering College (KGEC), Kalyani, Nadia, West Bengal

Mahadeb Rana

Librarian

*Kalyani Government Engineering College
Kalyani, Nadia-741235, West Bengal*

Abstract - This study seeks to explore the utilization of innovative techniques of outsourcing to the development of information system and services in the educational campus environment and can act as one of the source type of resources in Engineering, Science, Humanities and Technology field. Realizing the nature of an engineering institute, outsourced staff were contracted to develop the Campus Wide Information System (CWIS) as a resource base that is available online in KGEC. Library as one of the five fundamental pillars of an institute seeks to collaborative efforts to identify skills and competencies and build innovative tools and techniques always. The library of KGEC not only matches dynamics of the knowledge society but also creates an excellent opportunity as knowledge resource centre in a refined form for fostering universal access to information and knowledge through outsourcing to bridge the knowledge gap globally.

Key words-Information systems, Library resources, Website development, Outsourcing, Campus information, Management

I. INTRODUCTION

An information system within an institution should be established on the basis of clearly defined objectives and benefits. In order to achieve these, the institute should have a strategy and well developed plan. Campus Wide Information Systems (CWIS) are becoming an important resource base on the internet for world wide institutional campuses that are available online. As an important tool of an institute, CWIS performs an important function in the teaching-learning processes. It offers an independent integrated learning. It is a system through which the users can be informed promptly the overall aspects of any organization to propagate its products and services and can act as one of the source type of resources in Science, Humanities and Technology field. Today's scripting languages enable web developers to manage large amount of data and create customizable interfaces that respond to user needs, while information architecture techniques ensure web users to locate information quickly and efficiently. With such developments taking place and the ease with which all types of sources get created and mounted on the net through outsourcing. An initiative was taken to develop CWIS at Kalyani Government Engineering College (KGEC) with this new direction. The value of a CWIS is dependent on its effective utilization. In order to fulfill the project, an outsourced staff having expertise in the field was contracted. Now, the KGEC is able to provide the computing and network resources of the KGEC Campus-Wide Information System (KGEC-CWIS) in support of the academic mission and administrative functions of the college.

II. DEFINITIONS

Definitions of CWIS may vary.

For Turney (1996, p.178); they consist of "... of news, bulletin boards, information announcements about campus activities and other topics of general interest".

For Wiggins (1995, p.509) they are "a system that brings together online documents and ways to access campus computing resources under a single comprehensive umbrella".

CWIS is the system at KGEC that is publicly available and its information may be distributed electronically.

III. OBJECTIVES

The main objectives of proposed study were summarized as follows:

1. To design and develop an information system of the Kalyani Government Engineering College, Kalyani, Nadia, W.B.
2. To include all the activities of the system through links.
3. To provide overall user-friendly search by the system.
4. To keep provision for adding new arrivals, new features for ready reference and to view the text on demand.

IV. SCOPE

The system visualizes on overall aspects of Kalyani Government Engineering College in electronic form. It allows users easy access to the Information about students and their On Campus placement, Library OPAC, Research opportunities, Technical project reports of the students, Technical magazine / journal of the institute, Academic / administrative department policies, Schedules of lectures, Plays or movies on campus, Faculty research interests and publications, Course offerings by West Bengal University of Technology (WBUT) and Syllabi, Directory information, Making the department or organization more visible, Accessibility 24 hours a day, 365 days of the year to all members of the community via the Campus Wide Network, Links to sites of e-journals subscribed by the institute, Events calendar, Easy to use and co-effective means to reach a world wide audience.

V. REVIEW OF INFORMATION SYSTEMS IN HIGHER EDUCATION

As the landscape of scholarly communication and open access continues to shift, it remains important for academic librarians to continue educating campus stakeholders about these issues, as well as to create faculty advocates on campus. Here it has been briefly reviewed the Information System development in higher education leading to CWIS. Traditionally, information sharing among the members of college community has relied on a range of printed materials. Convergence and confluence of Computer and Communication technology has revamped opportunities on college campuses for sharing data and information among the faculty, staff and the students. Most of the college information systems range from registration systems, library systems, and financial systems, to campus-housing systems and other college service systems were often established in an uncoordinated manner, reflecting interests in different areas, and resulting in issues of redundancy and inefficiency. For example, student affairs, library, and a faculty may have the same information about a student although they use different systems to keep it (Malaney & Alvarez, 1996, p.75).

Oh, D(1995) used a questionnaire to survey people involved in the setting up and development of a CWIS. She addressed basic principles such as target audience, control of information, quality and confidentiality of information, legal issues, priorities, and cost, that needed to be considered before a CWIS development. From the survey responses, she developed a taxonomy with ten different approaches for CWIS development. Each of the approaches was based on:

- Overview of the situation where the CWIS could be developed;
- Reasons for setting up the CWIS;
- Kind of support of top-management;
- Ultimate managerial control over the system;
- Problems that may occur and how to solve them.

The study was concerned with how the CWIS should be developed and strongly suggested what and how the managers should do regarding CWIS development for its proper functioning.

Such a service, has now been recognized as a CWIS at Kalyani Government Engineering College and implemented with the help of outsourced staff as a central information service for the whole college community. CWIS development moved from mainframes to a network / workstation environment, and the tools have also been changed from the traditional CWIS platforms to tools with support such as World Wide Web and multimedia systems. An effort was made to design the information system for the Kalyani Government Engineering College, Kalyani which was uploaded and presented in the College website (www.kgec.ac.in/ or www.kgec.edu.in/). Necessary permission has been taken from the college authority and uploaded the information accordingly. The

author has reviewed about twenty five numbers of different national and international campus wide information systems (CWIS) also located in different parts of the country and abroad through the internet. These are as follows:

1. Long Island University (<http://www.liu.edu/cwis/cwp/library/mlking.htm/>)
2. Jamia Hamdard University, NewDelhi (http://www.jamiahamdard.ac.in/CWIS/CWIS_Intro.htm)
3. Jamia Millia Islamia: a central university (<http://www.jmi.nic.in/index.htm>)
4. Zayed University, United Arab Emirates (<http://www.zu.ac.ae/clginfosys/html/staff.html>)
5. Sri Venkateswara College of Engineering, India (<http://www.svce.ac.in/left.htm>)
6. Southwestern Indian Polytechnic Institute, New Mexico
(<http://collegesearch.collegeboard.com/search/servlet/createpdf?collegeId=2242&app=CollegeSearch>)
7. Administrative Staff College of India, Hyderabad, India. (<http://www.asci.org.in/index.asp>)
8. Centre for Learning Sciences and Technologies, Netherlands (<http://celstec.org/>)
9. Massachusetts Institute of Technology (<http://web.mit.edu/>)
10. University of Southern California (<gopher://gopher.hh.edu/>)
11. University of Michigan (<http://www.umich.edu/>) (<gopher://gopher.umich.edu>)
12. Harvard University (<http://www.harvard.edu/>)
13. Hawaii University (<http://www.hcc.hawaii.edu/hccinfo/cwis.html>)
14. Economics Departments, Institutes and Research Centres (EDIRC) (<http://ideas.uqam.ca/EDIRC/index.html>)
15. Geography Departments Worldwide (<http://geowww.uibk.ac.at/geolinks/>)
16. Rensselaer Polytechnic Institute (RPI) (<http://www.rpi.edu/index.html>)
17. The Wellesley College illuminator (<http://www.wellesley.edu/PublicAffairs/Illuminator/illuminator398.html#a5>)
18. Education Resources Information Centre, Colorado
(http://www.eric.ed.gov/ERICWebPortal/custom/portlets/recordDetails/detailmini.jsp?_nfpb=true&_ERICExtSearch_SearchValue_0=ED405820&ERICExtSearch_SearchType_0=no&accno=ED405820)
19. The University of Texas Health Science Centre at Houston (<http://www.uth.tmc.edu/oac/cwis/>)
20. St. Olaf College CWIS policies (http://www.stolaf.edu/cwis_policies/policy.html)
21. NOVA Southeastern University (<http://www.nova.edu/common-lib/policies/ipa.html>)
22. EDUCAUSE
(<http://www.educause.edu/Resources/CampusWideInformationSystemsUs/147898>)
23. Western Governors University Campus Wide Information System
http://www.evanscraig.com/resources/WGU/ex_summary.html)
24. informaworld
(<http://www.informaworld.com/smpp/content~content=a904835682&db=all>)
25. Northwestern University, Chicago (<http://www.at.northwestern.edu/b-nielsen/#cwis>)

VI. METHODOLOGY

The various stages that were followed to develop the information system are:

- 1) Definition of Objectives
- 2) Definition of system requirements
- 3) Design Phase
- 4) Implementation Phase
- 5) Evaluation and Monitoring phase
- 6) Site marketing
- 7) Feedback and maintenance

This phases were reviewed with the established practices and procedures and attempted to identify where, why and how a change in the system might be helpful. The next step was to start gathering information, designing and developing, implementing and maintaining the system on how to achieve the identified objectives.

The CWIS will have a simple look as the main aim was to describe the overall information of the college. HTML, a platform independent language was used for designing initially. Later, if the system has to build dynamic one, the cod can be reused with PHP or JSP.

VII. HARDWARE & SOFTWARE REQUIREMENT

- 1) Dual Core PC with 1 GB RAM
- 2) LAN
- 3) Operating systems: Linux/Windows2003
- 4) Internet Connectivity

VIII. ARCHITECTURE AND SITE MAP OF KGEC-CWIS

- College Background
- The College KGEC
- Central Library
- Web OPAC
- Research Opportunity and Publications
- College Magazine
- Journal
- KGEC People
- Directory Information
- College Project
- Academic Departments
- Sports Events Schedules
- Course Offerings and Syllabi
- Alumni Information
- Training and Placement
- Photo Album
- Other Facilities
- Contact Us

IX. DESIGN & DEVELOPMENT OF CWIS AT KGEC

First of all the author has gathered information about the college from different sources of the institution. Before designing the website, he has made a thorough discussion with his colleagues of the library, faculty, students and staff members of the college and has taken necessary permission from the college authority to upload the information. The author has gone through recent survey of national and international URLs of similar institutions which helps him a lot to design the CWIS programme of the college.

The present information system was designed using the following basic HTML tags:

```
<HTML>
<HEAD><TITLE>Campus Wide Information System (CWIS)</TITLE>
</HEAD>
<BODY> Write HTML Programming for designing body of Pages</BODY>
</HTML>
```

However, there are several tags but the following tags have been used for the purpose:

For text structure tags:

X. HTML HEADINGS :

Headings are defined with <h1>to<h6> tags

- Heading - <H1>Heading</H1>
- Heading - <H2>Heading</H2>
- Heading - <H3>Heading</H3>
- Paragraph - <P>Paragraph</P>

XI. HTML RULES (LINES) :

- Line break -

- Bold - Bold
- Italics - <I>Italics</I>

For list statements tags:

- Unordered list -
- Ordered list -

HTML STYLES

Style = “Background.colour: Yellow”

Style = “Font size:10px”

Style = “Font family:Times”

Style = “Text align : Centre”

For images tags:

- Image -

For table structure tags:

- Create table - <TABLE>.....</TABLE>
- Table row - <TR>.....</TR>
- Input table data - <TD>.....</TD>

For Frame structure tags.

<frame set>

<frameset rows=30%,70%>

<frame name=“ “>

<frameset cols=20%,80%>

<frame name=“ “>

<frame name=“ “>

</frameset>

For forms structure tags:

- Specifies beginning of form - <FORM METHOD=“post” ACTION=“directory”>
- Get text - <INPUT TYPE=“text” NAME=“var-name” VALUE=“default string”>
- Submits - <INPUT TYPE=“submit” VALUE=“submit data”>
- End form - </FORM>

For linking tags:

- HREF -
- NAME -

Before selecting the present design of the CWIS programme, the author with the help of outsourced staff tried several times to make it an aesthetically sound and a functional one.

XII. FINDINGS

A large volume of useful information has been generated in KGEC-CWIS. Users can gain quick access to the desired information. Web-OPAC allows users to search using specific query terms viz. author, title, subject etc. Many of the documents can be split into multiple hyperlink pages. Links can be provided to further information through hyper-linking. The system also visualizes the library with its bibliographical information in an electronic form. It allows easy access and circulation status of the library. A few important open access journals and e-journals (with their link) subscribed through INDEST-AICTE consortium have been included in the CWIS. The author visited many websites during last three months and noted the salient features therein including menu driven access to variety of in-depth information viz. (i) Background information of the institution (ii) Academic programme schedule (iii) Course details (iv) Campus computing facilities (v) Availability of online catalogue (Web-OPAC) and other databases (vi) Admission regulations and policies (vii) Placement records (viii) Information on e-journals/e-books etc. (ix) Research opportunities and publications (x) Campus life (xi) Directory information (xii) Technical reports, newsletter, bulletin board etc (xiii) Games and sports (xiv) Photo gallery (xv) Contact details of the institute

etc. Most of the sites also provide links to such sites that hold further links for such resources. Besides the individual institutional CWISs, most of the universities have web pages for each department that provide contact details of the respective faculty and staff.

XIII. LIMITATIONS

This system is limited to the Kalyani Government Engineering College of West Bengal only. Easy access to the information about students and their on campus placement; library OPAC; research opportunities; technical project reports of the students; technical magazine / journals of the institute; academic / administrative department policies; faculty research interests and publications; course offerings by West Bengal University of Technology and syllabi; directory information; making the department or organization more visible etc. and increase in count will result the site becoming slow using HTML. So far as functional aspect of the CWIS through contract with outsourced professional staff is concerned it will be limited to constant up-dating of web content maintenance, addition of graphical features, security etc.

XIV. CONCLUSION

Higher education especially the college and university education is rapidly expanding and more international than ever before. The market for students and staff is a global one. The research funds are increasingly allocated on an international and collaborative basis. Nowadays, academic reputations are based on global connections. Libraries of these institutions should collaborate to identify skills and competencies and build innovative tools and techniques that not only match dynamics of the knowledge society but also create excellent opportunities as knowledge resource centre in a refined form for fostering universal access to information and knowledge to bridge the knowledge gap. Library and information process outsourcing may play a pivotal role to this pavement. Therefore, as an information system of the Kalyani Government Engineering College (KGEC), Campus Wide Information System (CWIS) is intended to present an integrated view of the institution to the members of its community as well as to alumnae, prospective students and others with an interest. Nowadays, it has very strong significant role in any organization to propagate its product and services. It has a powerful impact on the audience. Through this system, we can cover a large number of audiences within a very short moment. However, the CWIS is a growing resource always “under construction”.

REFERENCES

- [1] Galliers, R. D. & Sutherland, A. R. Information systems management and strategy formulation: the stages of growth model revisited. *Journal of Information Systems*. No.1, 1991 pp. 89-114.
- [2] IGNOU. MLI-006: Content development, New Delhi : IGNOU, pp.142-148.
- [3] IGNOU. PGDLAN: Lab manual, New Delhi : IGNOU, pp.250-254.
- [4] Joyce Valenza. A web quest about school library. Available at: <http://www.sdst.org/shs/library/evallib.html>
- [5] Lynch, Patrick J. and Horton, Sarah. Web style guide: basic design principles for creating web sites. Hyderabad : Universities Press, 1999 pp.1-10.
- [6] Malaney, G.D. & Alvarez, R. Designing and managing a division-wide network: technical and organizational issues, *in* Lloyd, L (Ed.) *Administrative computing in higher education: issues in enterprise-wide networks and systems*, Medford, NJ : Information Today Inc., 1996 pp. 71-80.
- [7] Oh, D. Developing a campus-wide information system: a global experience. *Campus Wide Information Systems*. Vol.12, No. 1, 1995 pp. 15-25.
- [8] Powell, Thomas A. HTML & XHTML: the complete reference, 4th ed. New Delhi : Tata McGraw-Hill, 2006 pp. 27-36.
- [9] Rana, M and Paul, Dibyendu. Library and information process outsourcing (LIPO): a new managerial tool. *International Journal of Electronics and Communication Engineering Research*. Vol. 1, No. 4, 2013 pp. 6-22.
- [10] Rana, M and Paul, Dibyendu. Library process outsourcing (LPO): issues and approaches. *In 13th National Seminar of IASLIC held at Bose Institute, Kolkata*, 10-13 December, 2008. pp. 241-249.
- [11] Strauss, H. J. CWISs: myth, mania, or miracle. *Academic and Library Computing*, Vol. 9 No. 9, 1992a pp. 13-16.
- [12] Strauss, H.J. CWISs: what's in a name. *Academic and Library Computing*, Vol. 9 No. 10, 1992b pp.14-17.
- [13] Turney, G.W. Reengineering campus administrative information systems. *In* Lloyd, L. (Ed.) *Administrative computing in higher education: issues in enterprise-wide networks and systems*, Medford, NJ : Information Today Inc., 1996 pp. 177-187.
- [14] Wiggins, R.W. The Internet for everyone: a guide for users and providers. McGraw-Hill : New York, 1995. Available at: <http://www.obsus.com:80/obs/english/books/wiggins/home0.html>
- [15] Xavier, C. Web technology & design. New Delhi : New Age International, 2008.