# **ASSIGNMENT #03**

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**Executive Summary**

Intro// This study was conducted at The Department of Computer Science (DCS) at the University of Toronto. The Computing Disciplines Facility shoulders the web system of the department that primarily houses Linux and Microsoft Windows workstations. The CDF maintains course websites and newsgroups for each course taught at the university to assist communication between professors and students, an online information system for students to make online submission of assignments and for professors to upload students’ marks online. The purpose of this study is to analyze the existing web system in place, understand how students and professors perceive it, and look into feasible alternatives to determine the one that suits best.

Method of analysis// The study covers system’s current functionalities on the basis of three main factors: integration, standardization, and simplification. The existing system was analysed by surveying students, professors, and teaching assistants. Professors and TAs were inquired about the frequency of updating course web pages, duration it takes to update the course web pages, tools employed to update, and their main mode of communication with students. Students, on the other hand, were surveyed for how often they check course web pages, newsgroups, how crucial they find the platforms, and what changes they propose to the current system. TAs and professors were explained the proposed Website Management Tool and Web Portal and asked to give their input on the same.

Findings// Followed by surveys conducted, the PIECES framework is applied to assess the current standing of the system.

* Performance: The current system fails to deliver the required throughput and response time as professors spend more than enough time in making regular updates to their course websites.
* Information: Since the system has a low throughput, the professors are not left with enough time to deliver and maintain crucial information with respect to the courses. This means that the course websites are not as timely and accurately updated as required. Moreover, there exist broken links on course websites as location of the information on the Internet is not fixed.
* Economy: System is more time-consuming than it should be; hence, occupying too much of professor’s time that could be utilized elsewhere making it non-economical.
* Control: The system controls fraud and maintains security of data.
* Efficiency: CDF hardware resources are developed to handle a much greater utilization of resources than the system’s current output.
* Services: CDF team of administrators ensure that the system is always properly maintained and there is no disruption of services in peak hours.

The major problems identified in the following areas are:

* Simplicity: The system cannot be categorized as simple and easy-to-use because course websites can only be maintained by professors who have ample knowledge and efficiency in HTML.
* Integration: The multiple mediums of communication, i.e. newsgroups, online submission tools, course websites etc. work well individually but are poorly integrated. To be able to utilize them together, one must invest time and intensive resources.
* Standardization: All course websites have different layouts with no standardization imposed. Students have to learn the key structure of each course’s layout separately to be able to navigate their way through the system components.

Alternatives// Alternatives to improve and/or replace the existing system are propsed and analysed on the basis of cost, ease of use/implementation, ability to integrate with the current system etc. The alternatives are as follows:

1. Maintain the existing system as it has little to no costs of development. It ranks fourth among all the options explored.
2. Create a standard policy of creating websites (under the DCS) that follow the World Wide Web Consortium. This would ensure that all web pages follow the same template.
3. Integrate the existing system with CourseBoard, an external Web-enabled course support system. CourseBoard forms a hierarchical organization within a course that is composed to logical units like labs, topics etc. Its Web-based interface ensures that professors can update web pages without having proper grasp in HTML.
4. Integrate the existing system with tools of WebCT, a service provider of E-learning solutions. It offers services like lecture notes, quiz banks, video animations to teach courses online.
5. Bring professors on-board with a website generation tool that generates standard HTML pages by entering the relevant information required. It has no backend database to manage any changes made.
6. Make a Computer Science Student Community (CSSC) for students to interact with instructors, TAs, and their peers. Standardized course websites that will be updated via a template will be contained within the CSSC.

Recommendations & Goals// The sixth alternative scored 8.5 in the feasibility study making it the best suited alternative. It has an ease of use and can be smoothly integrated with the current system. It also the most cost efficient and offers the most functionalities. Out of 10, it scored 10 in cost, 8.5 in ease of use, and 9 in functionality. It ranks first in monetary terms and tangibility. These are the most weighted criterion to analyse the alternatives. The alternative offers new services like online forums for each course, options to message privately, and create online office hours.

As per the three goals of survey (simplifying, standardizing, and integration), this alternative emerges as the most feasible alternative for students and professors alike in terms of usability and communication while simultaneously making utmost use of the existing system’s services.