

**THE UCF 21 WEBSITE CONSTRUCTION,
DEVELOPMENT, AND IMPLEMENTATION**

**Bartricia Williams
Julia Pet-Edwards
Robert L. Armacost**

**UCF 21-TR-98-006
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UCF 21 Operational Excellence Initiative
Department of Industrial Engineering and Management Systems
University of Central Florida
P.O. Box 162450
Orlando, FL 32816-2450
(407) 207-4900
FAX: (407) 207-4903
ucf21@iems.engr.ucf.edu
<http://132.170.202.91/ucf21/>

Approved: _____

Dr. Julia Pet-Edwards
UCF 21 Project Director

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ABSTRACT

This Technical Report is part of a systems analysis of student services at UCF called the University's Customer Focus for the 21st Century (UCF 21). As part of the systems analysis, the UCF 21 website serves as a means of communicating the purpose and progress of the UCF 21 project to the UCF community and the world, as well as prototyping web-based surveys and web-based student services. The UCF 21 website was developed by taking into account the information needs of the systems and process analysts working on the UCF 21 project. This technical report describes the construction, development, contents, and future implementation of the UCF 21 website. Future reports will show how the UCF 21 website has progressed with respect to providing timely feedback from and to the UCF community about the activities of the UCF 21 project.

THE UCF 21 PROJECT TEAM

Dr. Julia Pet-Edwards, Director
Catherine Baltunis, Public Relations,
Christina Caruso, Technical Support
Lucas Henderson, Office Support

Dr. Robert L. Armacost, Systems Manager
Doreen Susan Lanham, Systems Analyst
Linda Trocine, Systems Analyst
Bartricia Williams, Systems Analyst

Dr. Charles H. Reilly, Process Manager
Carolyn Pace, Process Analyst
Mitra Eriksson, Process Analyst
Hans Peder Hagglund, Process Analyst

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THE UCF 21 WEBSITE CONSTRUCTION, DEVELOPMENT AND IMPLEMENTATION

1.0 INTRODUCTION

The University of Central Florida currently serves a diverse student body population of over 28,000 students. The main campus and the branch campuses at Brevard and Daytona Beach serve a primarily commuter student population. To link all of the students of UCF together and allow easy access to information about UCF regardless of the student's location, a UCF World Wide website has been established. This website serves to provide information about student services, various colleges, student records, registration and more. The use of the World Wide Web has the potential to be a powerful way to connect students to needed information. The "webification" of student information and university functions is one of the important short term goals of the university. With the ultimate aim of the UCF 21 project being to improve student services, the creation of a UCF 21 website will serve as an important aspect of information collection and exchange to facilitate the project goal.

The University, as part of its Strategic Planning Initiative, has provided funding to support the University's Customer Focus for the 21st Century (UCF 21) project to address this need for a systems level study of student services. The primary goals of the UCF 21 project are to:

- develop a systems level view of student services and their interactions by documenting all critical student service processes and their interrelationships;
- identify systems level improvement opportunities, including re-engineering;
- recommend changes and/or in-depth studies; and
- develop implementation plans for changes and /or in-depth studies.

The implementation of a UCF 21 website will serve to support all four of these goals. This Technical Report describes the objective and purpose of the UCF 21 website, its development and design, its functionality, its implementation, and intended and future use.

2.0 OBJECTIVE OF THE UCF 21 WEBSITE

The UCF 21 website serves as the virtual office of the UCF 21 project. The purpose, results, and information available about the UCF 21 project are easily accessible from any computer terminal throughout the world on a 24 hours a day, 7 days a week basis. The website is a less labor intensive way for the UCF 21 project to communicate with the university's key customers, and to collect information for use by the UCF 21 systems and process analysts

3.0 PURPOSE OF THE UCF 21 WEBSITE

The purpose of the UCF 21 website is to:

- describe the purpose and progress of the UCF 21 project;
- provide a mechanism for delivering the UCF 21 project results to customers;
- provide an efficient means to solicit UCF customer opinions about student services, both generally and in survey form; and
- serve as a potential framework for disseminating information about UCF student services.

The UCF 21 website will take advantage of individuals looking for specific information as well as casual browsers. With the prevalence of computers on campus and the virtual assured anonymity, it is expected that valuable data and comments with respect to students, faculty and staff can be obtained through the website. Even those students who matriculate at satellite campuses like Brevard and Daytona Beach will have a way to communicate their comments about student services at UCF, and feel as if they are truly able to make a contribution.

4.0 WEBSITE PLANNING

4.1 UCF 21 Website Server

The first website planning decision to be made was to determine an appropriate server on which the UCF 21 website should reside. Of utmost importance was placing the site where a reasonable amount of disk space was available to facilitate present and future development, and server reliability. Initially, the IEMS server was selected over the Pegasus server due to the perceived lower reliability of the Pegasus server and its restriction on disk space. The IEMS server would give the UCF 21 project greater control of uploading and updating the website. A test website was established on the IEMS server with the URL of: <http://ie.engr.ucf.edu/ucf21/>. This URL was used for evaluating the test website and was not made public. Because of capacity problems and support needs, the IEMS website was moved to a College of Engineering (Windows NT) server. The UCF 21 website is now established through the IEMS URL on the new server. At this time, the URL is <http://132.170.202.91/ucf21>. There are plans to change this URL to an actual alphabetical address (domain name). In addition, there will be a "forwarding address" link from the old URL address in case the URL must change and some users accidentally try to access the UCF 21 website through the IEMS server using the old URL.

4.2 Website Contents

The initial planning for the website included a content requirements definition that identified the following capabilities:

- main page (homepage) welcome statement and project logo
- objective/purpose of UCF 21
- links to other UCF 21 website pages to include

- personnel
- reports
- news
- communications
- prototypes for data collection and web-based services

4.3 Links

“Linking” facilitates moving from one page on the website to another. The initial requirements definition included links to a detailed description of the project, personnel working on the project, reports available for viewing and downloading, and how to contact the project. Additional linking capabilities are planned for the future, including links to prototypes to a web-based survey and web-based student services.

5.0 WEBSITE DESIGN AND DEVELOPMENT

5.1 Programming Language

The UCF 21 website was “constructed” by programming separate computer files in HTML (HyperText Markup Language). The main page, known as the “homepage” is the file that executes when a user calls up the UCF 21 website at the URL; <http://132.170.202.91/ucf21>. Activating any of the links on the homepage will send the user to subsequent parts of the UCF 21 website, known as “pages”. Although the use of HTML requires the use of an individual with programming expertise to maintain the site, the language has a number of advantages that led to its use. In particular, HTML files are relatively easy to modify when other data is needed for database and statistical analysis. Consequently, the UCF 21 website is extremely flexible and timely. For example, if a certain type of data needs to be obtained, an HTML file can be easily changed as compared to a pen and pencil survey and the survey administered on the web.

5.2 Initial Test Website

The coding for the initial test website was done without the aid of an editing program. It was discovered that in order to develop files for the website as desired and do so in a timely manner, a more advanced editor was needed. The Netscape Navigator Gold editor was used, but also soon proved to be limiting to the design scope of the current site and the future enhancements.

5.2.1 Initial test website beta testing

The files for the initial test website were uploaded onto the IEMS server. This made them available for viewing to anyone who knew the URL for the UCF 21 project. Beta testing was conducted in order to discover any usability problems and problems with the HTML coding. The beta testing identified a number of problems that led to revisions reflected below. The concept of usability was critical in the beta testing. Issues of aesthetics and connectivity resulted in a number of revisions as well. All

project team members were involved in evaluating and testing the initial test website. Beta testing will continue to be conducted with subsequent revisions of the site.

5.2.2 Initial test website usability evaluation

Several usability problems were discovered upon testing the initial site. First, the background was much too dark for users to read the information being displayed. According to the literature, the lifeline of a webpage is the ease of use and reading of it. Without ease of use, users would not consider this site worth the time exploring and exchanging information. Second, with the potential increasing number of pages, an easy and intuitive way to navigate through the subsequent pages of the site needed to be devised. If not designed well, a user can get lost quickly when going from one link to the other and get confused and frustrated. Third, there needed to be a way to translate the data gathered from the on-line form in the "Communicate with UCF 21" section. Upon initial testing, the form data being returned was not easily translated for collection in a database and use in statistical analysis as was intended for the UCF 21 project. A quick and easy way of gathering the data was discovered, but for future enhancements, a way of tailoring the data for certain areas of the UCF 21 project needs to be investigated and implemented.

5.3 First Website Revision

The result of the initial test website brought about numerous areas where the site could be improved with respect to the usability, aesthetics, and information exchange. As a result of the evaluation, publication standards were established and various layout and color changes were incorporated to improve aesthetics. In order to accomplish these changes, it was necessary to employ a more powerful development tool.

5.3.1 Development tools

The work involved in the development of the initial test website clearly indicated the need for a comprehensive webpage development tool. The IEMS department had been using *Front Page* for webpage development but it did not have the full functionality required. Subsequently, a limited duration license beta version of Microsoft's *Front Page '98* was obtained and used in the development of the revised website. This software speeds up production of the website files, and makes full use of and aids in the webmaster's programming expertise. Because it was known that the UCF 21 site would be transferred to the College server that supported *Front Page 98* produced pages, many of the capabilities could be exploited that would otherwise not have been possible on the IEMS server. In order to keep using *Front Page 98* in the future, a full version was purchased by UCF 21 prior to December 31, 1997 when the beta version license expired.

5.3.2 Aesthetics

The revised website incorporates lighter background colors. Where possible, a gold fleck background is used with black print. Initial beta testing indicates that this color scheme is a great improvement over the initial website, but more testing is

required to determine what subtle responses may be evoked by the present color scheme. The website was designed to ensure that the color scheme was used consistently on all pages. Consistency is an important criterion that is being used in the design.

Standards were developed and implemented for the presentation of report material. In particular, all text will be presented using an Arial font, no smaller than 11 point. Because the website will be used as a primary mechanism for distributing UCF 21 reports, standards were also established for the format and delivery of reports to be included on the website.

5.3.3 Standards for website publication of technical reports

Reports to be published on the UCF 21 website must conform to the following standards:

- Reports must conform to the guidelines published in UCF 21-TR-97-001
- Reports must be submitted to the webmaster in Microsoft Word;
- Report titles and text must be in Arial font;
- Font size must be no smaller than 11 point; and
- Pertinent hyperlinks desired in the report are to be added using the “hidden text” attribute.

A Microsoft Word copy of each document is made available for direct download from the UCF 21 website. The original reports were also translated to HTML format for publication/viewing on the website. It proved to be too time-consuming to continue this process. Adobe Acrobat was recently purchased by UCF 21 as a means of translating the reports to PDF format. It is currently intended that all reports will be published on the website in PDF format. These PDF formatted reports can be read on the website by using Adobe Acrobat Reader. This program is widely available on campus, and is available for download at Adobe Software’s website. A direct link to download Adobe Acrobat Reader will be provided on this page.

5.3.4 Feedback via forms on website

A key role for the UCF 21 website is to serve as a communication conduit for identifying the “health” of student services and seeking ways to improve their delivery. The initial test website included a form on the “Communicate with UCF 21” page to encourage customer feedback. As a result of the beta testing, the evaluation form was changed to explicitly show that the answering of additional demographic questions was optional. In addition, faculty, staff and administrators were included as potential respondents. Data entry in this form is facilitated by use of drop down boxes and buttons.

The feedback form is still under development. It will be designed so that data collected will be sent to a central file to be disseminated by the appropriate person(s). This file will be distributed via e-mail to the appropriate persons at regular intervals (at least weekly), and an archive copy will remain on the website at all times.

5.3.5 Revised website usability

The use of *Front Page 98* made it easier to expedite the development of webpages that incorporated usability changes. With respect to website navigation, a “navigation frame” was added that always appears at the bottom of the webpage, no matter where the user decides to go on the UCF 21 website. This frame contains links to the UCF 21 homepage (to bring users back ‘home’), along with the original links described for the initial website.

5.3.6 Access

Any person wishing to inquire about the UCF 21 project will be able to access the website. Access to the actual programmed files for the website are only to be modified by the UCF 21 Webmaster or Systems Technician, or the person(s) responsible for maintenance on the server where the UCF 21 website resides. With the purchase of the full version of *Front Page 98*, timely modifications and uploads of UCF 21 files by the UCF 21 Webmaster or Systems Technician will be facilitated.

5.3.7 UCF 21 e-mail access

Users are able to communicate with the UCF 21 project team, providing their comments and insights, using the “Communicate with UCF 21” link. This link goes to the UCF 21 e-mail address. All data received via this link is initially disseminated by a Systems Analyst and then passed on to the appropriate analyst for further examination. The UCF 21 e-mail account will be checked daily by the Webmaster, or another designated UCF 21 project member when the Webmaster is not in the office. All e-mail received at the UCF 21 e-mail address will have a response no more than 24 hours after receipt. Access to the UCF 21 e-mail is restricted to project personnel.

6.0 WEBSITE IMPLEMENTATION

6.1 Approval

Copies of the current website pages are included in Appendix A. The content and functionality of the proposed UCF 21 website has been reviewed and approved by the Provost. The original site (on the IEMS server) was announced in a news release on the project in the December issue of the *UCF Report*. Following the move of the website to the College server and the placement of links from the UCF website (see Section 6.2), the UCF 21 website location will be announced by a broadcast message on Pegasus.

6.2 Links From the UCF Website to the UCF 21 Website

The primary access to the UCF 21 website will be through the UCF website. The existing UCF website does not have an easily discernible “intuitive” organization, and it is likely that individuals interested in UCF 21 activities may take a number of different journeys through the UCF website. We have explored various potential routes and have identified several locations on the UCF website that could provide links to the

UCF 21 site. These locations were reviewed and approved by the President and Provost in January 1998. They are summarized in Table 1.

The project experience with the UCF website to date suggests that it could benefit by a substantial redesign. No formal evaluation has been performed, however project team members have been asked to identify specific areas for improvement and an evaluation of the UCF website with respect to student services is currently underway. The placement of UCF 21 website links to the UCF 21 website summarized in Table 1 takes advantage of the current structure.

Preliminary arrangements have been made to effect the above links as soon as the site is fully operational. A counter of the number of clicks to the UCF 21 site from the various sources will be implemented to help analyze browser interests and concerns.

Table 1. Proposed links to UCF 21 website.

Topic	Location	URL Link	Narrative/Hyperlink
1. News	at top of page with "Knight Wire News"	http://132.170.202.91/ucf21	"Student Services and <u>Operational Excellence Initiative</u> "
2. Virtual Campus	as the eighth main heading	http://ie.engr.ucf.edu/ucf21/communicate.html	" <u>UCF 21 Comment Box</u> " and "Student Services Operational Excellence Initiative"
3. Links	one in the list of known UCF Web Servers	http://132.170.202.91/ucf21	" <u>UCF 21 Operational Excellence Initiative</u> , Reengineering Student Services, Comment Box"
4. UCF People	under the For the Whole UCF Community heading	http://ie.engr.ucf.edu/ucf21/personnel.html	" <u>UCF 21</u> "
5. Academics and Administration, under Office of the President	under <i>both</i> <u>UCF Vision</u> and <u>Goals</u>	http://132.170.202.91/ucf21	after the goals, add the list of four strategic directions with our link with its strategic direction <ul style="list-style-type: none"> • promote interdisciplinarity • foster learning communities • achieve <u>operational excellence</u> • make innovative use of technology
6. Academics and Administration	under Department Home Pages	http://132.170.202.91/ucf21	" <u>UCF 21</u> "
7. Campus Info	under Phone Listings, short Campus Directory	207-4900	"UCF 21"

6.3 Website Maintenance

It is critical that the information on the UCF 21 website be current and accurate. A review and appropriate modification/update of the UCF 21 website files will be accomplished at least weekly, or more frequently if needed. A visible "log" of site modifications will also be placed on the site.

7.0 FUTURE EXPANSION

The website described in this report is intended to be a dynamic, “living” entity during the duration of the UCF 21 project. It is likely that some aspects of the website developed during the project will be valuable and will find a permanent home in order to enhance student services. The future expansion of the UCF 21 website will depend on increasing the technical capability as well as identifying creative uses for the site to enhance student services. The following short term expansions are possible.

7.1 CGI Scripting

In order to make the website more interactive, CGI scripting is being investigated as a better means of obtaining, compiling and relaying information given. For example, data sent to UCF 21 can be automatically compiled and entered in an appropriate file suitable for direct data analysis through the use of CGI scripting.

7.2 Prototype for Surveys

As discussed earlier, one of the major functions of the UCF 21 website is to collect data. A prototype for web-based surveys that could be used to collect data will be developed. Currently, it is envisioned that Microsoft FrontPage will be the development tool for these prototype surveys. In addition, commercial software is being investigated that can handle more advanced surveys and facilitate translating gathered data into database format. The details of our investigation of web-based surveys will be summarized in a future report.

7.3 UCF 21 Success Department of the Week

There are numerous activities underway on campus that are focused on improving student services. Part of the UCF 21 activities will help to shine the spotlight on successes. One area for website expansion involves developing weekly “success” stories. These stories will be “discovered” by the project team members and written up by the public relations member. A link on the current UCF 21 website has been provided for this purpose.

7.4 Visitor/Counter

We have placed a counter on the UCF 21 homepage and will incorporate counters on each web page of the UCF 21 website to assess the interest in the activity. This also includes a visible announcement to each visitor indicating the cumulative hits on the site. A counter will always be visible on the homepage.

7.5 UCF 21 Links to Student Services

One of the goals of the UCF 21 project is to identify all of the students services available on campus and to determine how information about those services is accessed. An inventory of over 100 student services has been developed (see UCF

21-TR-98-003). Frequently, there are websites that contain some information about services for students. One area of possible expansion is to include hyperlinks to those services from the UCF 21 website.

It is planned that the UCF 21 website will provide students with a way to search for desired student services. Students should be able to access the UCF 21 website and be led intuitively through the search process to find the particular student service they are looking for. There are a number of ways to accomplish this. In those reports that deal with student services, the on-line version could include the appropriate URL and hyperlink. In addition, the project is also examining the relationships among the various student services. From this information, there may be an effective way to navigate through a taxonomy of services that includes appropriate URLs and hyperlinks. Implementation of this alternative will obviously take significantly more time and effort than the first alternative, but it has the potential to be a framework for a UCF web-based system to provide student services information.

8.0 SUMMARY

The UCF 21 website has been carefully developed respecting usability principles and is designed to provide both information and access regarding the UCF 21 project. It functions as a primary communication mechanism for the project. It is currently operational and is updated and enhanced on a continual basis. Because of the key role that this and other websites are expected to play in providing student services, we have invested considerable time and effort to ensure that it is well done. The existing website is poised for future development and enhancement, with the possibility of becoming a model for providing active links to student services and prototyping other web-based services.

APPENDIX A

UCF 21 WEBSITE (March 1998)

The content of this appendix includes the page frames for all pages in the current UCF 21 website. Because there is a navigational frame for each page and both frames can not be printed together, there are generally two printed pages for each screen.