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SEARCH ENGINE OPTIMISATION (SEO) REPORT: BSc (HONS) COMPUTER STUDIES

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"Head of Marketing"

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1. Executive Summary

To begin with the problem of the Computer Studies website is defined to give the report on search engine optimisation for this course a defined reasoning. Upon the conclusion of the problem definition, the solution is proposed as an outline.

The behaviour of search engines are examined and the way that the two market leaders Google and Yahoo define their search ranking policy is also explored, to understand best how to perform SEO for the Computer Studies web page.

A process identifying key moments of opportunities begins the process of identifying keywords and key phrases to use on the web page. Each of these opportunities are analysed by the SWOT method and also by looking at competitors. The site is then giving focus by giving a set list of criteria differing levels of priority. The conclusion of this is the ability to refine the list of keywords and phrases which could potentially be used on a reformed Computer Studies web page, and also for the potential later for online marketing.

The current web page is then analysed to examine its architectural structure in terms of depth, the structure and quality of the code which underpins the web page and also the current keyword density for the primary key phrases off the web page.

With the analysis all complete the recommendations for the process of the search engine optimisation will take place by looking at issues such as search engine and directory submission, changes to the architecture of the current web page, changes to the narrative of the web page, changes to the code that underpin the web page.

The final recommendation in the process of SEO will be to complete a linking strategy by identifying who could link to the web page and who currently does.

2. Introduction

To enable the growth of the course Computer Studies, and to stop the general decline in the number of applications of the course as identified in the marketing plan for Computer Studies, it is recommended that the process of search engine optimisation (SEO) is carried on the Computer Studies web page.

The benefits of this will include improving the ranking on all the major search engines including Google, Yahoo, and Windows Live. It will also allow the opportunity to improve the current content of the web page with more relevance to what prospective students would require, whilst being rich with keywords necessary for search engine success.

Using the Computer Studies web page as a testing platform to how well SEO works, without having to redesign the entire school website at this time. If this proves successful, then the foundations and principles can be applied to all courses.

3. Definition of the Problem

Currently the number of applications for the course Computer Studies has been steadily decreasing over the past several years as indicated in the web marketing plan's sale forecast. This number correlates to the decline in applications for computing courses in general. The amount of traffic to the web page currently is low from search engines, and for example when searching for computer studies degree in Google, the web page on the School website does not display in the first 5 pages of results, whereas several identified competitors such as Southampton Solent, and Nottingham Trent Universities do.

Analysing the existing web page for Computer Studies against several competitors' web pages who offer the same course, the lack of relevant information an applicant would require was visible. It is therefore required that more information is required about the course to give prospective students the best impressions of the University as we try to sell the course to them.

4. Proposing a Solution

To move Computer Studies forward and to reverse the decline in applications to the course, several areas need to be analysed to perform efficient and effective search engine optimisation.

This includes segmenting users to find where key moment of opportunities (KMO) may arise through several fictitious scenarios. From each of these key moments of opportunity a list of keywords relevant to the web page will be presented and later refined.

From each of these KMO's, a SWOT analysis will be undertaken against the market place and the competitors that exist within. This will help to match the user needs with the goals outlined in the web marketing plan for Computer Studies.

The next stage will be to analyse our competitors both locally and nationally in the market place against each other KMO, in terms of search engine ranking and results from a set of key phrases identified earlier during the creation of the KMO's.

The focus of the web page will then be outlined against a set of criteria which will be rated between low and high in terms of priority.

With the above all complete the set of keywords defined from the KMO's will be refined and altered as a result of the SWOT and competitor analyses, and the focussing of the Computer Studies web page.

With the set of keywords identified, identification of different search engines and directories will be examined, to ensure that the Computer Studies web page is submitted to each.

The current shape of the overall School of Computing website will be analysed, to see whether it is deep and tall, or wide and short. The structure of the website is important to search engine ranking improvement, as shallow and wide sites are much more preferred to deep sites where links can become lost far easier, and user lose their orientation within the website itself.

The current keyword density will be analysed from the Computer Studies web page, and actions required to improve this will be offered as part of the SEO process. The code of the web page will be reviewed to see what changes are required to make the site more search engine friendly, such as being XHTML compliant, not using tables for layouts, and using alternate text to embed keywords further.

With Google's system of using Page Rank's to help determine the importance of web pages and their content, a linking strategy will be devised, to identify external websites that the Computer Studies should be linked from to help increase the search engine ranking further.

5. How a Search Engine Works

A search engine works by using a small program called a search engine crawler or spider, which are used to identify new content across the World Wide Web. They trawl across the web looking for any new content that does not already exist in their database, or for content that has been updated. Websites are quite commonly submitted to search engines automatically in most cases, by virtue of having a link on another website that has already been indexed by the spiders.

However if a website is new and does not have any links pointing to it from other sources then it is impossible for that site to be indexed in the search engine's databases. This is where manual submission of a website becomes applicable, and is easily achievable on the main search engines and directories such as Google, and Yahoo.

As a site grows, and becomes an "authority" on its subject areas people will begin to link to the web page or website and therefore help to increase the search engine ranking. For example, if a website about 'Computer Exams' had one hundred links pointing to it, and another had no links, then the first would be higher up the search engine rankings.

Different search engines have different algorithms and processes to best decide how to rank web pages, and these are examined next.

5.1. Google

Google currently uses a system called Page Rank to provide the logic to deciding how web pages are ranked for the keywords that are searched for. The rank a page can receive is between 0 and 10, with 0 meaning the site could be banned from Google listings, or be relatively new to the search index, and 10 being a high quality website, that has high quality websites with a similar high Page Rank linking towards them (Google, 2007a).

One decisive factor in determining the ranking of a web page is equivalent to a voting system, where the number of clicks a web page receives is noted. The web pages within search results that are clicked most frequently will move up the search rankings, whereas those that receive few clicks will move down the rankings (Google, 2007a).

Being linked from thousands of websites does not guarantee a high page rank and search engine ranking. The quality of the websites linking towards a web page will be taken into consideration (Google, 2007a), therefore the monitoring of who links towards a site and devising a link strategy is recommended.

Google also looks at the quality of web pages to see what the keyword density is, and whether the document has been structured correctly using titles, headings, hypertext link text, and properly formed paragraphs. The spider that Google uses is called GoogleBot (Google, 2007a).

5.2. Yahoo

Yahoo will rank web pages on a number of different factors, including the text of the link being related towards the keyword or key phrases. The use of Meta tags is also advised to describe the document (Yahoo, 2007a).

It also recommends standard practice such as ensuring that alternate text is applied to all images (Yahoo, 2007a).

If a page is linked to another which is unrelated for no reasons, then the website in question could be removed for the Yahoo search index as it is a breach of the Yahoo Terms of Service (Yahoo, 2007a).

Yahoo describes its own ranking system as “according to their relevance to a particular query by analyzing the web page text, title and description accuracy as

well as its source, associated links, and other unique document characteristics" (Yahoo, 2007b).

6. What is Search Engine Optimisation?

Search Engine optimisation is basically the process of taking an existing website or surface area of a website, and then making changes within the content, code, and ensuring visibility in all the major search engines and directories to help improve the search engine ranking of the website, which will then equate into more visitors to the website and the prospect of increased numbers of applications to courses, which in this case would be BSc (Hons) Computer Studies.

6.1. The Benefits of Search Engine Optimisation

Search engine optimisation or SEO, has a two-face benefit, the first primary benefit being the improvement of search engine ranking for defined keywords with results aiming to be within the top 10 for the primary key words identified, but also the second lesser benefit being the website will become far better coded, will download quicker, and be more compliant with a number of different browsers and platforms, such as mobile devices (Webcredible, 2007).

7. Defining Key Moments of Opportunity

The description outlines what exactly the opportunity is about, the need is what a user wants to find or gain information about, and the action describes the process the user went to, to gather the information.

7.1. Key Moment of Opportunity 1

7.1.1. Description

A college student is searching for a computer studies course in September to help make a decision what course to apply for in preparation for filling in the UCAS application form.

7.1.2. Need

Find locations of Universities that offer computer studies courses.

7.1.3. Action

- Logs on to the Internet.
- Looks on Google for computer studies courses.
- Decides to look on UCAS for a clearer list of institutions that offer computer studies.
- Clicks on course search > 2007 > search
- Enters computer studies and views results.

7.2. Key Moment of Opportunity 2

7.2.1. Description

A 24-year-old prospective student who has taken a couple of years out of education is looking for a University that offers Computer Studies as a course, and also for the cheapest accommodation.

7.2.2. Need

Find a list of Universities which offer Computer Studies as an undergraduate course.

Wants to find the cheapest accommodation.

7.2.3. Action

- Searches Google for ‘University courses’.
- Visits UCAS, and searches for the course ‘Computer Studies’. (Course search > 2007 > search)
- Makes list of the first 10 universities that are displayed.
- Clicks on each institution name and find information about accommodation.

7.3. Key Moment of Opportunity 3

7.3.1. Description

A college student who is predicted 200 UCAS points from their A Levels, is looking for a University that has the tariff level required for a ‘Computer Studies’ course.

7.3.2. Need

Find entry requirements to Universities for ‘Computer Studies’.

7.3.3. Action

Goes to Google and searches for UCAS points and computer studies, and reads only the first 2 pages of results, and makes a note of any Universities that require 200 points or less.

7.4. Key Moment of Opportunity 4

7.4.1. Description

A 26 year old looking to re-enter education wants to find out more information about what the course ‘Computer Studies’ offers and the kinds of modules there are to choose from.

7.4.2. Need

Wants to know what Computer Studies involves and what range of modules it offers.

7.4.3. Action

Goes to Yahoo and searches for computer studies modules, and only reads the first five results.

7.5. Key Moment of Opportunity 5

7.5.1. Description

A student wants to study computer studies or an equivalent course locally with the north-east region. Will gather information about the courses from respective Universities to make a decision at a later date.

7.5.2. Need

Wants to know which Universities in the north east offer computer studies, or an equivalent course.

Wants to be able to order a paper version of a prospectus, to be able to compare course details from different institutions in their own time.

7.5.3. Action

Goes to UCAS > Course Search > Search >

- Subject: Computing
- Course Type: Degree/Full Time
- Institution: All
- Regions: North East

Makes list of universities and relevant course names from UCAS results.

Goes to Ask and searches for each University by name with prospectus in the search term.

E.g. “Teesside University prospectus”.

7.6. Keywords and Key Phrases Identified

The following keywords and key phrases have been identified using the five key moments of opportunities created in sections 7.1-7.5.

UCAS tariff points, UCAS points, course entry requirements, university application, computer studies, computer studies course, computer studies modules, computer studies course information, accommodation, accommodation costs, course fees, university fees, course scholarships, computing courses, course cost, computing studies, north east universities, Teesside university prospectus, university of Teesside prospectus, school of computing courses

This list will be refined and will remove erroneous key words and phrases that will not be required to optimise the Computer Studies web page.

7.7. SWOT Analysis of Marketplace

Each of the key moment of opportunities will be analysed separately to identify the strengths, weaknesses, opportunities, and threats presented from each.

7.7.1. SWOT Analysis – KMO 1

A college student is searching for a computer studies course in September to help make a decision what course to apply for in preparation for filling in the UCAS application form.

Strengths

- Listed in the UCAS directory under ‘Computer Studies’.
- Offer two levels of Computer Studies, degree level, and HND level.
- UCAS links have an entry profile for the course.

Weaknesses

- Low search engine ranking for the keyword ‘Computer Studies’.
- Low down on the UCAS search results purely on the basis of alphabetical order.

Opportunities

- Improve search engine ranking for the keyword ‘Computer Studies’.
- Alter the content to be more search engine friendly, plus increase the amount of information applicants may wish to know.

Threats

- There are several competitors listed under ‘Computer Studies’ on Google, such as Southampton Solent, and Nottingham Trent, ahead of the School of Computing’s own Computer Studies web page.

7.7.2. SWOT Analysis – KMO 2

A 24-year-old prospective student who has taken a couple of years out of education is looking for a University that offers Computer Studies as a course, and also for the cheapest accommodation.

Strengths

- According to a study by Accommodation for Students, Teesside is one of the best for value, and cheapest places for student accommodation.

- Links to information on accommodation are linked on the course entry profile.

Weaknesses

- Not in the top 10 due to alphabetical order on UCAS under Computer studies.

Opportunities

- Highlight the cost of accommodation at the University and in the local area around Middlesbrough.

- Highlight events and places to go out in the local area.

Threats

- Channel 4 program, Best and Worst Place in Britain, saying Middlesbrough is the 6th worst place to live.

- The stereotypical view of smog and chemical plants on the banks of the River Tees.

7.7.3. SWOT Analysis – KMO 3

A college student who is predicted 200 UCAS points from their A Levels, is looking for a University that has the tariff level required for a 'Computer Studies' course.

Strengths

- The file name of the web page is search engine friendly.

Weaknesses

- No mention of UCAS tariff requirements on the Computer Studies web page.

Opportunities

- To include the required number of UCAS points to apply for the course at the University.

- Reword the narrative, to increase keyword density.

Threats

- All competitors that are included in the first two pages of the search results that indicate the number of UCAS points required to undertake the same course.

7.7.4. SWOT Analysis – KMO 4

A 26 year old looking to re-enter education wants to find out more information about what the course 'Computer Studies' offers and the kinds of modules there are to choose from.

Strengths

- The web page for Computer Studies comes 3rd in the search results.
- The HND version of Computer Studies on the School website comes in 4th on the Yahoo search results.

Weaknesses

- Only the titles of the first year modules are available on the page.
- No details of brief descriptions are provided on the web page, just links.

Opportunities

- Include a brief description of each of the first year modules.

Threats

- One rival offers a downloadable PDF which comes 1st in the search results which goes into much greater detail of the course and modules.

7.7.5. SWOT Analysis – KMO 5

A student wants to study computer studies or an equivalent course locally with the north-east region. Will gather information about the courses from respective Universities to make a decision at a later date.

Strengths

- Well structured and easy to view prospectus.

Weaknesses

- No defined course map as students choose their own modules in first year, which may not appeal to students who like to have a course structured and have a defined direction beforehand.

- No PDF version of the prospectus.

Opportunities

- Offer a link to download the prospectus, or the page from the prospectus on the Computer Studies web page, to try and get more traffic from applicants.

Threats

- Competition from other computing courses within the University that will be displayed in the prospectus.

- May choose a city centre campus over a town centre for the night life.

- Durham University offer a customised electronic prospectus, where users can choose just the subject areas they are interested in.

7.8. Competitor Analysis of the Marketplace

A number of keywords and key phrases have been taken from section 7.6 to gauge how well other Universities who offer the same course do on search engines.

7.8.1. Southampton Solent University

Strengths

Higher in search engine rankings for 'Computer Studies course (1st page – 7th)' and 'Computer Studies' (3rd page).

Weaknesses

Does not appear in the first 5 results for 'Computer Studies modules' in Yahoo.

7.8.2. University of Sunderland

Strengths

Offers a wide range of computing courses.

Weaknesses

Does not appear in the first 5 results for 'Computer Studies modules' in Yahoo.

Does not offer computer studies as a degree course.

7.8.3. Nottingham Trent University

Strengths

Displayed in 4th page of results for 'Computer Studies', 2nd page for 'Computer Studies course'.

Weaknesses

Does not appear in the first 5 results for 'Computer Studies modules' in Yahoo.

7.8.4. Northumbria University

Strengths

Based in Newcastle city centre, with more places to visit during the day and night.

Weaknesses

Does not appear in the first 5 results for 'Computer Studies modules' in Yahoo.

7.9. Focusing the Web Page

Below is a table creating the focus for the Computer Studies web page. This focusing along with the analysis for competitors and SWOT will enable the list of keywords and key phrases identified in 7.6 to be refined to reflect the Computer Studies course more accurately.

1 = lowest priority, 5 = highest priority

My website can help my customers by:	Rating 1- 5
1. The Computer Studies web page helps my customers save time	3
2. The Computer Studies web page helps my customers save money	1
3. The Computer Studies web page must makes direct sales	2
4. The Computer Studies web page gives my customers confidence in my products	5
5. The Computer Studies web page is a source of valuable expert knowledge for customers	1
6. The Computer Studies web page helps my business save money	1

7. The Computer Studies web page is aimed at creating contact but not direct sales	2
8. The Computer Studies web page replaces other channels of communication	2
9. The Computer Studies web page helps customers by offering alternative courses.	2
10. The Computer Studies web page helps customers by linking directly to the UCAS online system.	4
11. The Computer Studies web page helps customers by offering downloadable content such as PDF's.	3
12. The Computer Studies web page intends to market to the local region.	5
13. The Computer Studies web page intends to market nationally.	3
14. The Computer Studies web page intends to market internationally.	2
15. The Computer Studies web page helps customers by giving details on accommodation and living in the local area and on campus.	4
16. The Computer Studies web page helps customers by giving advice and information on financial support for fees through tuition loans, bursaries and scholarships.	4

7.9.1. Summary

The focus of the Computer Studies web page is to provide information about the degree course, and the opportunities it offers. It also serves as a page for information in regards to the UCAS application process, including required tariff points, UCAS code. Advice about the financial support available and the cost of fees should be provided, if only by hypertext links. Information about the local area, to try and sell the course and the University and the local surrounding area

is secondary in terms of priority to requirements but is advisable to reach a wide an audience as possible.

7.9.2. Refining of Keywords and Key Phrases

With the focus of the Computer Studies web page now known, below is a refined set of keywords and key phrases, which will be analysed on the current web page, then coding changes suggested increasing the density of them within the web page narrative.

Keywords and Key Phrases for Computer Studies

- Computer Studies
- Computer Studys
- Computer Study
- Computer Studies course
- Computer Studies modules
- Computer Studies course information
- Computing Studies
- Computing Studys
- Computing Study
- Computing Studies course
- Computing Studies modules
- Computing Studies course information
- Course information
- Generic degree
- Open choice computing course
- Open choice computing
- Low cost university accommodation
- University fees support
- Computer studies financial support
- Computer studies bursaries

- Computer studies scholarships
- University of Teesside prospectus
- University of Teeside prospectus
- UCAS points for computer studies
- Undergraduate course AND computer studies

Several versions of phrases are included to account for spelling mistakes that a user may make when making a search query on Google, Yahoo, or other search engines, for example. The main phrases above will now be analysed to see if they currently exist in the web page for Computer Studies, on the School of Computing website.

The above phrases are also helpful to define an online marketing campaign for Computer Studies at a later date.

8. Web Page Analysis

8.1. Keyword Density Analysis

The current web page for Computer studies will now be analysed to see how many times keywords and key phrases appear in the text.

Keyword	1st 25	1st 100	Density
1. Computer Studies	0	2	
2. Computer	4	6	
3. Generic degree	0	2	
4. Undergraduate	1	2	

The phrase Computer Studies does not exist in the first 25 words of the web page due to the structure of the code. With a cascading style sheet (CSS) visible to a user, they read the text from the title onwards. However, search engines do not have the ability to view CSS, so in the current case the first 25 words on the Computer Studies website are the navigation. If the text was not to include the navigation, the keywords and phrases used and their density would be sufficient enough as a starting basis, with the potential for improvement.

8.2. Website Shape Analysis

The School of Computing website which contains the web page for Computer Studies has a very flat web structure, and is quite hierarchical. There is one distinct different directory, following the home page in width, and in the directory to access the Computer studies page required 4 clicks as shown below:

Courses > Undergraduate > Generic Degrees > BSc (Hons) Computer Studies (goal)

An ideal example of how the funnel should be to get to the course would be as follows:

Courses > BSc (Hons) Computer Studies

8.3. Code Analysis

The web page for Computer Studies at present can be clearly identified as a landing page within the School of Computing's overall website structure.

The page is currently structured using div tags and CSS, however the ordering of the elements means that when CSS is disabled, that navigation is placed before the content, meaning the first 25 words that search engines see are just the navigational elements.

The Meta tags at present are very thorough, and have alternate key phrases that people may use to find the web page. However, misspellings of these key phrases are not included. The Dublin Core initiative Meta tags are also used in the head of the document.

The page title currently uses the name of the course, and is the most relevant key phrase that could be wanted for the Computer Studies web page. Not all of the heading tags are currently used in the correct manner to include keywords.

Bold tags are currently used to emphasise content on the web page, rather than the standards compliant tag.

The structure of the page is laid out by cascading style sheets, using a traditional left hand navigation, and top tabbed navigation, with the content beneath and beside that.

9. Website Recommendations

This area of the report sums up the findings from the previous sections on how to complete the process of search engine optimisation (SEO) to benefit the Computer Studies web page, and to help increase the number of visitors to the website to try and help reverse the trend of decreasing applications from prospective students to study the course.

9.1. Search Engine and Directory Submission

9.1.1. Search Engine Submission

Currently the School of Computing website and the Computer Studies website are in the search engine indexes for both Google and Yahoo. Therefore the need to submit them manually does not exist, as any changes made to the web page will be recognised by the search engine spiders upon their next visit to the website.

Submitting a search engine manually constantly could result in the website being removed from the search index permanently and the site being banned from future submissions. Therefore it is recommended that no manual submission is required upon the completion of any search engine optimisation performed.

9.1.2. Directory Submission

Directories are different to search engines by the fact that all websites in their index is grouped by categories, and on the most case edited by volunteer editors. The two main directories that provide listings to search engines are DMOZ and Look Smart. Therefore to help increase the search engine ranking of the Computer Studies web page it is strongly recommended that it is submitted to the correct category in each of these two directories.

At current the web page is not submitted to either directory. To gain an entry into the DMOZ directory, the category “Computers/Education/Courses” is suggested. A form will be completed with information on the web page. The site URL (web address), and title of the web page will be submitted, along with a description of what the web page is about. After submission of the form this will then be reviewed by an editor before being approved or rejected for listing. DMOZ is particularly important as it provides its listings to major players in the search engine market such as Google, AOL, Teoma (now Ask), and Alta Vista (I Help You, 2007).

In the case of Look Smart which provides listings for Lycos and Excite (I Help You, 2007), their policy has recently changed and submission is no longer possible as the site has become focused on cost per click (CPC or PPC) advertising (SearchEngine.com, 2007).

As identified by SearchEngines.com, 2007, Yahoo also has a directory. This works in a similar fashion to DMOZ, and the most appropriate category for Computer Studies is “Education/Higher Education/Honors Programs”. All that is required for free submission is the URL of the web page, before the web page is reviewed.

9.1.3. Google Sitemaps

One tool that can be used to monitor the search engine activity on a website, and to keep the search engine up to date with the website’s structure is to create a Google Sitemap, and use Google Webmaster tools.

A Google Sitemap in a nutshell, is an XML structured file which contains all the links on a website, the date of last modification, and titles and descriptions. Google states that this is particularly useful for dynamic websites whose content isn’t easily spiderable due to the web address including PHP variables (Google, 2007b).

Using a Google Sitemap will enable the search engine to discover new pages on the website far more easily, and when changes are made also (Google 2007b).

The Google Sitemap is administered using Google Webmaster tools where a list of sites that link to the web page will be listed, any errors found on the website, and the Google spider crawling stats, which states when Google last visited the site to index content (Google, 2007b). The file for the Google Sitemap can be automatically generated with a number of different downloads that Google provides links to, so that the file does not have to be manually created.

9.2. Changing the Structure of the SCM Website

The structure of the website as it stands is almost perfect, as it is very wide, and has very little depth. However it has irrelevant depth, with all web pages being contained within a directory called “html”. The best course of action would be to move all the pages from this directory into the root directory of the website as it serves no purpose over than making the website deeper.

The funnel of how information is found on the website could be drastically improved however. For example to improve how undergraduate courses are found on the website, they could all be listed on one page, with an introductory paragraph at the head, rather than having them all categorised, and making the funnel for a user even longer.

The downside is the fact there will be so many internal links on one page. However if alphabetically listed a user will not mind as much, and will appreciate being able to see all computing undergraduate degrees at a glance on one page, rather than checking category by category. This also acts as a benefit to search engines, as the page will be perceived as a hub page, similar in style to that used by the BBC on their homepage.

9.3. Content Changes

Changes in the page narrative will need to be considered to make the first 25 words include the majority of primary keywords and key phrases, with the following 75 also containing a fair density of keywords and key phrases. The first 100 words from the current narrative are shown below, with the keywords and key phrases underlined (the first 25 words are in bold).

"UCAS Code: G402 BSc/CSt
Course Structure and Content
The BSc (Hons) Computer Studies Degree is offered as a three-year full-time course or a four-year sandwich course.
This is a generic degree course, which offers a great deal of scope for individual choice. The idea is that you can choose to study what you like. Students select modules from any of the computing degrees run by the School. They may also select a limited number of modules from those offered by other Schools within the University. Individual guidance will be given to advise students on how to put together a"

The above shows the key phrases and words a user may search for in regards to Computer Studies. The UCAS code has been selected as a keyword due to the nature a UCAS applicant may know the code of the course they want, and are trying to find Universities on a search engine that run the course.

A more refined version that has a better keyword density, for example is shown below, using the same format as before.

"BSc (Hons) Computer Studies
Full Time Degree (3 Years/4 Years)
The Computer Studies degree is a generic course, which allows individual choice allowing you to study what you like. Students select computing modules from a wide range run by the University of Teesside. Alternative options

to choose other modules run elsewhere in the University of Teesside is available. The course is all delivered on our campus, which is a few minutes away from Middlesbrough town centre. Financial support is available in the forms of bursaries, scholarships and student loans. Computer Studies at the University of Teesside requires 140-200 UCAS points"

The above will make better use of heading tags to emphasise content, for example the first two lines, will use H1 and H2 respectively, to give some context and hierarchical structure to the web page for the search engine to interpret. As seen above keywords and key phrases are used more often throughout the text, and are also repeated throughout the 100 words.

Missing information that was identified in the web marketing plan will also need to be added to the full web page, and as seen in the above 100 words have begun to be mentioned, such as financial support, and information about the surrounding area for students who want a good night life, as well as facilities.

Information missing from the above opening paragraph includes information regarding the facilities available at the University for the course, contact details, the UCAS code, and also the list of modules each with a brief description.

With the above content changes the search engine ranking should improve, but will also benefit from changes to the code behind the scenes.

9.4. Code Changes

To enable the search engine to index the web page for Computer Studies as intended then several changes need to be implemented to the HTML (hypertext mark-up language).

The first change involves rearranging the order the content is coded. At present as discussed earlier, the navigation is coded before the actual page content, therefore the first 25 words would just be words from the navigation, which

contains very limited keywords and phrases. To resolve this, the page should be separated into a number of different div tags, which can then be positioned into the expected locations using CSS (cascading style sheets). The different div tags should be ordered as follows:

- Content
- Top navigation
- Left hand side navigation
- Header
- Footer

Changing the order of the div tags in the HTML will make no difference to the appearance of the web page if the CSS is correctly coded.

The second change would be to structure the content area into headings, and emphasise the main keywords. The heading tags should always contain keywords, such as the course name, for example. In the refined example in section 9.3, the first line of text would use a H1 tag, and the second line a H2 tag, as these show different logical levels in the document.

The use of meta tags and Dublin core meta tags has already been implemented into the code design of the web page very well, but would benefit from some tweaking, such as adding spelling error versions of key phrases, for example ‘computer studys’ or ‘comptuer studies’. These mistakes are often made by users searching, and could be beneficial if designed correctly.

Alternate text on the two existing images on the current web page make excellent use of keywords and key phrases, and use the name of the course within them. This is another way of increasing the keyword density in the document, without over elaborating them in the paragraphs of text that users will read. Header tags should be used as a way of creating a structure to a document similar to this report. For example, H1 tags would be used for the main titles of page content, H2 would be used for the sub headings that apply beneath, and H3, for any more

breakdown of content and so on. An example of using the header tags is giving the Module List a H2 tag, as it comes under the umbrella of the main content, and then giving each individual module name, an h3 tag. A code sample is below.

```
<h1> BSc (Hons) Computer Studies </h1>
……
……
     <h2>Modules Available</h2>
          <h3>Module Name 1</h3>
          <p>This is an <em>important module</em></p>

          <h3>Another Module</h3>
……
```

Figure 9.1. Example code showing header tags in action.

Another tool in the arsenal for code changes is the use of the emphasis HTML tag. This traditionally emphasises words by italicising them, although this can be changed to bold or to standard default text through the use of CSS. Placing keywords and phrases inside of these tags would emphasise to the search engine that they are important areas of the text, and again will contribute to the keyword density and importance.

An em tag example can be seen in figure 9.1.

10. Linking Strategy

With Google's principle Page Rank system being influenced by the number of clicks a website receives, and also the page rank of the website the link comes from, defining a linking strategy is important. This will allow the Computer Studies web page to identify other related websites and then the negotiation with the owner of the website would begin to decide how and where a link would be displayed. Any websites that is related is not the best way to approach this area, but rather choosing five quality websites, for example, with Page Ranks of 7-10. Having links from websites with lower Page Rank's has the potential to lower the Computer Studies web page ranking in the search results and the Page Rank also.

10.1. Who Links to the Computer Studies web page?

An important area for devising a lining strategy is to find how many, if any, websites currently link to the Computer Studies web page. This will open the avenue for contacting the website in question to negotiate with them to edit the link to include a keyword in the text of the link.

Using Google and its link query string, 1 website was found to link to the Computer Studies web page. This website was the web page for the HND equivalent of the course offered by the University. The Page Rank of the web page is currently is 3 (PRChecker, 2007). This is an internal link from the School's own website, and the scope for adding links on a number of external websites now exist, as none currently do.

10.2. Who Links to Competitors?

This area of a link strategy is important as it has the potential to identify websites that exist which may not have been found otherwise that link to the University's competitors. With negotiation it could be possible to have the School's own link

to Computer Studies along side a competitor's increasing the potential for prospective students and also for improving the search engine ranking of the course.

Using the link query again, the three competitors who offer the same course are queried against to see who links towards them.

Nottingham Trent University

link:http://www.ntu.ac.uk/prospective_students/course_finder/course/Computer-Studies/FDE9C197-1592-4372-8BD4-705B126FC699

No websites found to link directly to Nottingham Trent University's Computer Studies web page.

Northumbria University

link:http://northumbria.ac.uk/?view=CourseDetail&code=DUPCOM1

No websites found to link directly to Northumbria University's Computer Studies web page. One internal link from the Northumbria website was identified, under Course at Northumbria University.

Southampton Solent University

link:http://www.solent.ac.uk/courses/undergraduate/computer_studies_bsc/course_details.aspx

No websites found to link directly to Southampton Solent University's Computer Studies web page. Two internal links were found from Southampton's website from another course and from a student profile.

Despite the specific web pages not having any external links towards them that have been spidered by Google, links do exist on UCAS inside the entry profiles. The reason that the links have not been displayed by Google is that the entry

profiles are accessed dynamically through searches and category selection, and search engine spiders are unable to fill in or interact with forms.

In addition, each individual website as a whole has numerous links pointing towards it, with 1,040 linking to Nottingham Trent University, 126 linking to Northumbria University, 653 linking to Southampton Solent University, 961 linking to Teesside's website, and more specifically 70 linking to the School of Computing website. Going through these links to look for a potential website is not worthwhile as the majority of the number from each comes from internal links. The best method which can be used in future to identify internal links from external links is to use Google Webmaster Tools, which does this automatically, and is pictured in figure 10.1.

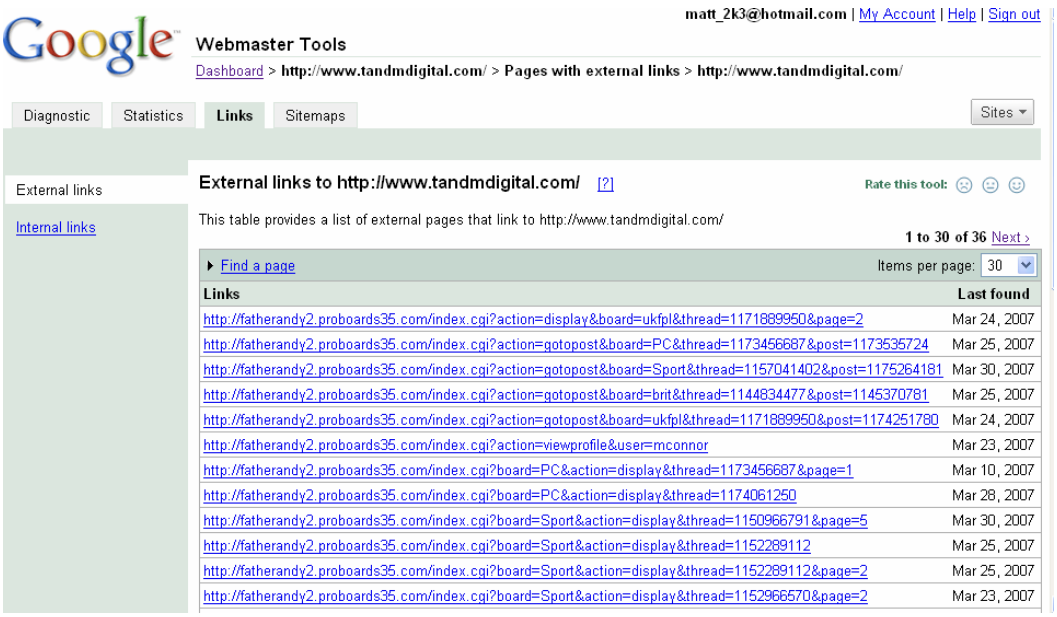

Figure 10.1. A screenshot of Google Webmaster Tools showing a list of external sites.

10.3. Who Can We Link To?

By again using Google, it is possible to find related web pages that have link pages which could have the potential to add the School of Computing's Computer Studies course to.

The search is undertaken by placing a keyword plus the operator + link pages.

This process has been undertaken for a number of different keywords including "university courses", "computer studies", and "computer courses".

Page Ranks in bracket are to indicate the home page's rank of each website.

"university courses" + link pages

Frank's Education Pages – Links
http://www.education-pages.co.uk/other/links/
Page Rank: 3 (3)

Excite UK – Computers – Education – Courses
http://www.excite.co.uk/directory/Computers/Education/Courses
Page Rank: 3 (7)

This key phrase was too broad to specify many link pages with relevance to Computer Studies. However one links page and a further directory have been identified.

"computing (university) courses" + link pages

Mystic Bunny
http://www.mysticbunny.pwp.blueyonder.co.uk/bookmark.htm
Page Rank: 1 (-)

UK Pages – Cleveland – Middlesbrough – Education

http://www.ukpages.co.uk/Cleveland/Middlesbrough/Education/index.html
Page Rank: - (3)

University Courses College and University Directory
http://www.study-in-the-uk.co.uk/training-and-courses.htm
Page Rank: 2 (1)

Student Reading
http://www.studentreading.co.uk/student_resource_links.php
Page Rank: 0 (1)

Aim Higher
http://www.aimhigher.ac.uk/courses/index.cfm
Page Rank: 6 (7)

Education UK
http://www.educationuk.org/related_links/
Page Rank: 2 (7)

ATSF
http://www.atsf.co.uk/manmult/manlinks_courses.html
Page Rank: 3 (5)

Usability by Design
http://www.usability.uk.com/links/links-courses.htm
Page Rank: 3 (6)

In terms of being linked by specific sites related to Computer Studies and computing courses which have high Page Ranks, not many have been located. The main beneficiary one would be the link from Aim Higher, which would entail considerable negotiation and the identification of more directories such as Excite.

10.3.1. Reviewing Links Available

From the links identified in 13.3, there are few relevant websites to gain links from, of which would be beneficial in terms of a website being an authority on a subject, or having a Google Page Rank above 5.

The School of Computing's current website scores a Page Rank of 5, and the Computer Studies scores a Page Rank of 3, therefore from the identified links, Usability by Design, ADSF, Education UK, and Aim Higher should be approached to try and negotiate a placement of a link on their website with the key phrase that we specify.

The above search also found additional directories such as Excite, which should also be submitted to.

10.3.2. Where Would Links be Positioned?

In negotiation it is likely that the website concerned will want a link placed back to their site in return, as in most cases, you don't get something for nothing. In regards to the positioning of these links it would be recommended to create an external links area on the web page, to the right hand side of the content, proceeding after any information on the UCAS code, and internal links to support about financial support, accommodation, etc. A diagram shows a rough outline of how the reformed web page would look, with the changes recommended by this report.

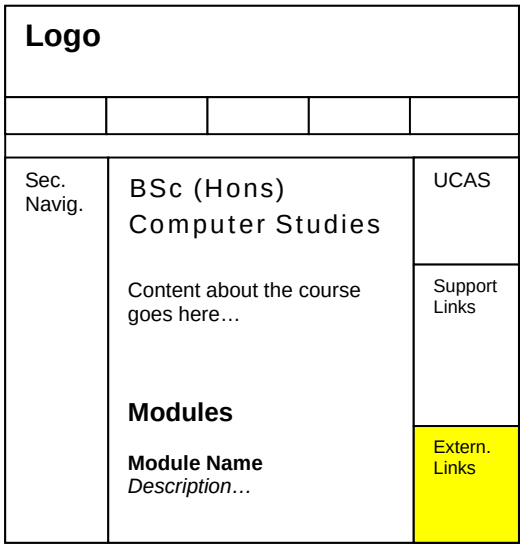

Figure 10.2. Sketch of the new layout including an area for external links seen highlighted in the bottom right corner.

11. Conclusion

In conclusion elements such as the implementation of Meta and Dublin core Meta tags have been analysed during the course of this report in regard to search engine optimisation and exist in a format satisfactory to supplementing the future improvement for search engine rankings for the course BSc (Hons) Computer Studies.

Areas that will need to be undertaken to improve the search engine ranking, is to reproduce the narrative for the web page describing the course to improve the keyword density. An example of this can be seen in section 9.3. In addition some coding changes will be required so that the first coded content after the body tag in the HTML is the narrative of the web page and not the navigation as it stands currently.

Submission to directories will also be necessary, in particular DMOZ, to maximise the potential to improvement on search engines, on which we already exist such as Google and Ask.

In regards to creating a linking strategy several sites have been identified. The monitoring of links both internally and externally have been explored with the recommended tool Google Webmaster tools, where the creation of a Google Sitemap is also recommended.

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