# How to Develop an Online Course

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1.1. Needs Analysis

Specify why you are developing the online course. List the requirements that the course must fulfill.

Here are a few questions to help you think through this process:

- What is expected of the online course?
- Are there remote students for the course?
- Will it replace or supplement existing training?
- What will the project cost?
- Is an online course the best choice?

- Who will continue maintenance?
- Will there be regular updates and changes? Should it be designed to incorporate changes easily?
- Who will finally approve the course? What are his/ her expectations?

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1.2. User Analysis

An analysis of the student's needs must be done in order to structure the online course to meet those needs.

- Who are the target students?
- Will they be able to access the course site and perform all the necessary interactions?
- How will the student benefit from the online course?
- How can the student's progress be evaluated?

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1.3. Technical Analysis

Define the toolbox of technologies. The purpose is to establish baseline technical capabilities and estimate development cost, effort and implications.

- Establish minimum standards. Constraints of the web like bandwidth, browser software and versions etc. will imply restrictions in choice of media and tools.
- How long is it going to take to develop the online course?
- What technological tools will be needed? How much will they cost? What type of equipment will they require?
- How many people with specific skills will be needed? HTML page creation and cgi script installation to name a few.
- How much will the development impact the instructor's workload (if the discussion forum is essential for the online course)?
- What will be the software/ hardware requirement for the student's machine?

- What are the software/ hardware requirements for the server? If you're planning to use cgi scripts for forums, guestbooks etc. it is advisable to choose a UNIX server running the required version of Perl. The online course should be hosted on a fast, reliable server, with a high bandwidth connection.

- How fancy can the pages be? What is the related hardware/ software/ technology impact (slower transfer, more strict hardware requirements, need for special plug-ins, etc.)?

- What authoring tools should be used? Macromedia Dreamweaver 2 is great for creating and editing HTML pages!

- Which image editing, sound editing and video editing software should be used? Macromedia Fireworks 2 is great for image optimizing!

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1.4. Resource Analysis

Conduct a thorough analysis of the available resources. This will help you project the amount of effort required to generate the remaining resources.

Available resources could include content, graphics, media, books, reference materials etc. Take note of the formats of the existing material as well (e.g. electronic, paper etc.).

- Is the available information pertinent and relevant?

- Are there administrative policies and procedures for taking the online course?

- What about copyrights?

- How much of the total content is already available in electronic format?

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2.1. Educational Goals

Clearly define the objectives of the course. What will the student be able to accomplish after completion? Keep it practical and relevant to real world situations. They should also be measurable so students can evaluate their performance. Some questions you will need to answer are:

- What are the educational goals?

- How will these goals be accomplished?

- Which goals will possibly not be accomplished and how can we compensate for them?

- What approaches could be used to achieve a given goal? Which of them is more viable?

This will help you:

- Minimize deviation during the development of the course.

- Design your course for compactness.

- Design tests/ quizzes effectively.

- Give students guidelines by which to evaluate their performance.

- Build accurate expectations from the course.

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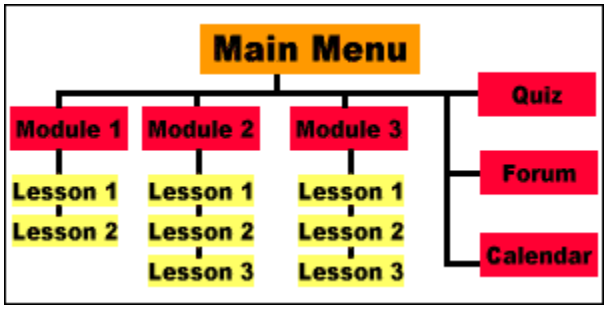
2.2. Course Map/ Flowchart

How will the HTML pages be structured? Prepare a flowchart showing how the course progresses from start to finish. Include main menu, lessons, pretests, quizzes, course map, help, discussion forums, guest books, events calendar and any other components of the course. The HTML pages containing the course material should be organized in a way that makes navigation easy, simple and consistent and reduces the amount of work necessary for site maintenance.




Finalize this as early as possible in order to avoid rework at a later stage. Remember that rework sometimes involves more time and effort than starting from the beginning again! This will also help you design the navigation for the course.

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2.3. Detailed course content chunking and rewriting

Rewrite the course content for the web, keeping in mind your target students all over the world. Organize and present the content in such a way that the end user meets his or her learning goals. Keep the language simple and friendly. If there is no instructor/ teacher to provide the human touch you will need to present the content in a non-threatening, easy - to- understand way. Incorporate motivational elements (e.g. Certificate on completion, discussion boards for interaction with other students etc.). Self study and distance education requires more discipline and has a high dropout rate. Specify the resource demands of the course (in time and effort) up front in order to prepare them and keep their expectations realistic.

According to InterEd, an education-research outfit, students are most likely to succeed in a distance-learning program if-

- They are self-motivated and good at setting and meeting their own deadlines
- They use E-mail frequently and find it a satisfactory way to communicate
- They enjoy spending time by themselves at their computer

Chunk the content (cull it down to the essential and present it in discrete informational units) for each element in the flowchart/ course map. Present the content in small easy-to-digest modules. Allow for easy scanning since a high percentage of web users read that way. Use plenty of subheadings and ensure that the main points are emphasized visually. Decide whether a graphic would aid learning. Keep in mind the constraints of the web and download time while deciding to use media like audio or video. Above all keep it compact. Use the course objectives to eliminate unnecessary information. Alternatively provide links for further information, which could be of interest to the student.

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2.4. Duration of course

Determine how long it will take the student to complete the course. Communicate this to the student. He will require this information to plan his learning time effectively.

This is a good time for you to determine whether some modules are highly time consuming and work around it by splitting it up into smaller chunks. You may even decide to combine very small modules in order to distribute the content more evenly. A very heavy module may discourage the student and lead to his/her drop out.

Since a single web page can contain almost any length of information it is important to keep it more or less consistent and provide navigational facilities within the page itself at logical points.

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2.5. Test questions

Design your test questions keeping the course objectives in mind. The idea is to evaluate the student's learning and provide constructive feedback where necessary. It is an aid to learning and not an elimination process. Vague and confusing questions must not be asked. Test items differ from paper due to the constraints of the web and maybe the absence of an instructor. Quiz scripts can be installed, programmed with the correct answers and feedback. Multiple choice and true/false questions are most popular.

At the end of this procedure you should have prepared the:

- Test question
- Possible answer choices
- Correct answer + reinforcement (feedback)
- Wrong answer + remedial feedback

Ensure that these will work with the available web technology (cgi scripts, HTML page only, posting answers on message board, e-mailing instructor)

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2.6 Glossary of terms

Prepare a glossary of terms which can be easily accessed by the student should he/ she require any clarifications. Since you do not know who the student could be, all terms should be explicitly defined without making assumptions.

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2.7. Media Planning

Check available media. Clearly describe required media. Generate a storyboard for media and verify it with the SME/ client. This can save rework during the development process.

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2.8. Layout design

Design the basic page layouts. Incorporate the navigational and interactive elements. Navigation should be simple and intuitive. Also, the students need to be oriented about where he is within the course. You may suggest the best path through the course but enable the student to chalk out his/her own path if he/she so wishes. In the world of

hypermedia, the user decides the direction best suited for accomplishing his or her goal to learn.

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3.1. Interface Design

The interface is what the student will see on the screen. It includes:

- Navigation features - like buttons and links giving easy access to important and relevant information.

- Orientation - This tells the student where he or she is within the course.

- Metaphors - Choose a look and feel or theme for the entire course. This includes colors, background graphics, names of key elements etc. Eg. If using a classroom metaphor, you might like to design the buttons as written on a chalk board with names like 'syllabus' for 'main menu', 'locker', 'classmates', 'scores', 'student profile', 'discuss' or ' message board'. While converting a seminar you would probably chose very different titles for the same elements. Alternatively if it is a practical course on how to use a certain piece of machinery, you might like to design the buttons as those on the machine.

This is one of the most critical phases of the development process. Careful thought is required while designing the interface. Every attempt should be made to give the Web pages a consistent "look-and-feel".

A dynamic prototype interface of a typical course page should be created ready for testing.

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3.2. Usability testing

The dynamic prototype interface should be tested on the end users. Their reactions noted and suitable changes made. You may realize that the interface is not as intuitive as you thought or that the student expected something else entirely when he or she clicked on a certain button. Any frustration in getting to a certain required piece of information should also be noted and action taken accordingly. It is best to finalize the interface design at this stage, since this forms the basis for the template, which will be used throughout the course. Changes at a later stage may involve a lot of rework.

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3.3. Template design

Once the interface prototype is tested and finalized, a template can be created. Using the flowchart (course map) for reference all the pages can be created with a blank space for the content. All these pages can be linked and the navigation tested for functionality.

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4.1. Media creation

Based on the storyboards create the variety of content that will make up the course. This includes:

- Text
- Still graphics
- Import images into an optimizing software like Macromedia Fireworks 2. Optimize it so that its file size is lowest while retaining a good quality. For graphics with flat colors and transparent areas, GIF is the best format. For photographs and graphics with a lot of detail, JPEG is the best format.
- Animations could be animated GIFs or Flash animations.
- Movies - Video must be compressed to download faster ont he web.
- Audio - If adding music or narration, it must be compressed to download fast.
- Databases
- Shockwave content

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4.2. Html document processing

The media generated must be added to the HTML pages generated with the template design. Word documents can be covered to HTML format to keep the formatting intact before transferring it to the HTML pages. Video may require special controls. Graphics may have to be resized one seen in the Html page layout. The use of WYSIWYG editors like Macromedia Dreamweaver 2 make this process pretty simple.

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4.3. Cgi Scripting

Install cgi scripts like the discussion forum, guestbook, calendar, membership etc. These scripts are available on the Internet free or at a nominal price. Choose a script which can

be easily customized to your requirements and given the look and feel of the rest of your pages. Good and timely support also is important should you run into any problems during installation or even at a later date.

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4.4. Java Coding

If any sophisticated interactions are required, JavaScript may need to be done. Eg. Current date, Site statistics etc.

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4.5. Administration Handbook
While installing these scripts a record should be maintained containing all important URLs, userIDs, passwords, support information, server details etc. This is essential for ongoing site maintenance. An HTML file can be generated to serve as the handbook with active links to all important URLs and e-mail addresses.

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5.1. Uploading Files

After developing all the elements of the course, they must be transferred to the remote hosting server. This can be done using an FTP software like WS FTP. Dreamweaver 2 also has a Site Manager with FTP facility.

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5.2. Online Testing and Evaluation

Once your course goes online you'll find that some things which worked fine on your local computer don't work too well when browsed from a remote server. Constraints of the internet will slow down the loading process of pages, graphics etc.

It is important at this stage to thoroughly test the online course. If certain pages are loading too slowly you might have to make changes in your HTML design or sacrifice quality for speed in the case of graphics. You will need to test on various browsers and browser versions as well since you never know what browser your students are using. Currently Microsoft Explorer 5.0 is dominating the browser market however Netscape Navigator 4.5 is also popular. You'll find that some things that work fine on Microsoft Explorer look different or don't work at all, on Netscape Navigator.

After FTPing the HTML pages and thorough testing, the online course is ready for evaluation.

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5.3. Approval
The versatility of the web makes it possible to make changes fairly quickly without heavy expenses. The online course must be evaluated keeping the objectives specified in the needs analysis as a benchmark.

Once approved, the online course must be made ready for submission to search engines.

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6. Promotion

Each HTML page of your online course can be promoted separately. Add the meta content like keywords, description, title etc. into the HTML pages. The pages should then be submitted to all major search engines so that potential students can find your course easily. This process can be time consuming since search engines can take up to a month to index you. Once you see your ranking on the search engines, you may have to tweak your pages so that your pages show up higher on the search engine listing. Read our article on promotion for more information.

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7. Site Maintenance

Site maintenance is an ongoing process. Updating information, fixing bugs, moderating discussion forums, updating the calendar of events and adding new courses is necessary to keep your site vibrant and alive.

Adding new features and building a community will help make your site 'sticky' and keep them coming back. There's no limit to what you can do. So design your site for easy expandability. Don't wait for perfection - the flexibility of the web allows you to keep making changes.

Hope this tutorial helped you to get the big picture. Don't forget to e-mail me when you put your course online! Any feedback will also be appreciated. Good Luck!

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