

Improving Access to Electronic Resources for Classroom Instruction

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Abstract

As engineering faculty assign projects and homework, they can facilitate access for their students to electronic resources such as on-line books, journals, proceedings, etc. In many instances instructors can now include links in their on-line syllabi, web-based teaching tools, or course reserves to current, critical, and creditable research resources. An academic library is a teaching support tool that is often overlooked by teaching faculty. Librarians can assist the faculty to identify useful sources, and suggest ways to incorporate them into the classroom and keep them abreast of the rapidly changing library environment. Since on-line resources change frequently librarians can be valuable resources to instructors.

Introduction

Technology is a boon for educators, freeing them to focus on teaching. In the past teaching faculty spent countless hours writing and organizing documentation. Currently instructors can simply edit last semester's or last year's syllabi for this semester. Many engineering faculty are putting their syllabi on-line to facilitate access. Libraries, just like technology, can offer faculty methods to enrich course content by showing them electronic resources that are available and relevant. Libraries are becoming more sophisticated through the purchase of access to electronic books, journals, and citation/abstract databases. These new electronic resources are available on-line with improved 24/7 point-and-click access through library web portals.

Libraries are accustomed to helping faculty locate appropriate resources for their courses. In the past this translated to librarians creating bibliographies for courses. The faculty would simply add the handout to their semester packet. However with the advent of the Internet, how can libraries help faculty obtain materials for this new technology/medium?

According to McCreanor, instructors are placing their lectures, quizzes, and links to important Internet sites on web-based teaching tools, e.g. WebCT, or on course web pages. Faculty are finding that by placing information on-line, the information is organized in one convenient location that facilitates learning for the students. The class notes may have links that lead students effortlessly to a professional organization website with relevant research. Thus students are able to spend more time learning and less time trying to locate on-line resources or figure out complex URLs.

It appears that students are ready for this next level of interaction. The students themselves are quite comfortable with a variety of communication options to enhance their learning outside of the classroom. Internet access has become an important component of the engineering student's toolbox⁹. However, students have trouble with information literacy. They cannot always discern which Internet sites are valid or offer accurate information. Faculty and librarians are in a better position to examine information resources to determine their validity. Faculty have this knowledge because they are immersed in the research of their profession. Librarians know how to identify valid sites by examining the credentials of the website and verifying the authors by checking references. But students do not have the depth in engineering fields to be able to ascertain a resource's validity by experience, nor do they make the time or have the inclination to go through the extra steps to check references⁵.

Course Content

An increasing number of engineering faculty are posting their syllabi, lecture notes, and exam/quiz solutions on the Internet. Some of these postings are simple web documents while others are part of a course website software/web-based teaching tool, e.g. Blackboard, WebCT, etc. The motivation to mount the information on the Internet depends on the educator's technical skill, the technical support provided by the department and university, and the department's drive to move to an on-line environment.

Typically faculty hand out to their classes a syllabus that contains the following information:

- Required reading list
- Suggested reading list
- Homework assignments
- Project description
- Semester calendar of readings, homework, and test dates
- Other information required by the department/university such as academic dishonesty or non-discrimination statements

The syllabus is a document that can be more than just a listing of reading sources. When it is put into a dynamic environment, either on the web as an HTML document or as part of course website software, the syllabus can become a portal to on-line books, journals, conference proceedings, and association/society websites.

Librarians can help educators identify which course materials can be accessible on-line at no cost as well as those on-line services that have been or could be purchased by the library for classroom and research use, including electronic books, handbooks, encyclopedias, and journals³. Library materials are funded through the libraries' materials budget. By having the library purchase course materials, faculty can better use their limited teaching funds on other necessary resources. Libraries also provide other services, such as course reserves and web-based teaching tools, for faculty and students to reach their educational goals.

Course Reserves

While most students purchase the textbooks required by the course, many fall short of obtaining other types of reading materials, especially optional materials. This may be due to the students' unwillingness to spend time looking for the resources or to pay for them. Instructors can alleviate these access and funding issues for students by adding articles or books to their course reserves.

The popular Reserves unit provides free services to faculty and students. The sole purpose of Reserves is to make available multiple copies of materials for classroom use by students⁸. At the request of a faculty member, books and photocopies of articles, or chapters of books may be placed in Reserves. Course reserves is the electronic component of the Reserves unit. Each university library Reserves unit has guidelines as to what, how many, and how long materials will be placed in Reserves and course reserves. Below is a sample list of items allowed in the Reserves unit at Texas A&M University Libraries⁸:

Print Reserves

Types of Materials - The following materials may be placed on Print Reserves:

- TAMU Library Books
- Personal copies of books (supplied by instructors)
- A single copy of a chapter, or excerpt from a book
- Photocopies of single journal or newspaper articles (made by Reserves staff or supplied by instructor)
- Solutions, handbooks, lecture notes, class readings, etc. (supplied by instructors)
- Exams/quizzes, from previous semesters (supplied by instructors)
- Course syllabi

Electronic Reserves

Types of Materials - The following materials may be placed on Electronic Reserves:

- A single chapter of a book
- A single journal article from one journal title (made by Reserves staff or supplied by instructor)
- Non-copyright materials such as solutions, handbooks, lecture notes, class readings, etc. (supplied by instructors)
- Excerpts from government publications
- An excerpt for a prose work as long as the excerpt does not exceed more than 10% of the work
- Course syllabi

The Reserves unit will, in most cases, advise the faculty of copyright issues^{6, 8}. The faculty have the responsibility of obtaining permission to duplicate copyrighted material not covered by the fair use guidelines. However, giving the task of digitizing materials to the Reserves staff spares the faculty much time and aggravation. The turnaround time for each course depends upon the amount of material to be added to course reserves and how far in advance the job is submitted. Materials added before the semester begins will be processed in a shorter time. Teaching assistants are permitted to put materials on course reserves on behalf of faculty.

Librarians can help the faculty collect materials that will be placed in Reserves and course reserves⁴. This service organizes materials in one location, whether it be in a physical location or at one website. Students appreciate the time that they save when a course is well organized.

Web-based Teaching Tools

WebCT¹⁰ and Blackboard² are examples of web-based teaching tools or course website software. Each software has its own advantages and disadvantages. However, all of the software will facilitate the educator's task of creating an on-line presence for a course. Lecture notes, problem sets, testing modules, readings, etc. can be placed into course website software. The course website software is flexible enough to adapt to different types of course and usage needs¹. Librarians can assist with identifying websites that offer relevant and accurate information. Course website software have tabs or sections so that research information can be logically located. Examples of these sections include: research tools, resources, course tools, and readings. These sections can accommodate required readings, literature reviews, subject guides, data sets, and association/society links.

Sometimes faculty leave the research tools and readings sections blank because they do not know what to place there. These sections are the perfect place for links, library subject pages, and library instruction handouts. The required readings may be a link to the library's electronic book version or to the Reserves page. A literature review section may include links to several electronic journals that publish articles that are relevant to the course or links to citation/abstract on-line databases that specialize in literature for the course subject. The research tool section may include a subject guide that was prepared by a librarian that lists all of the pertinent publications and citation/abstract databases for students to use when conducting research. In all of these cases, librarians can either send links or documents, such as a subject guide to library resources, to the instructors to incorporate within the course website software modules.

Subject guides prepared by librarians can contain the following items:

- Library catalog pages
- Databases: on-line indexes/abstracts
- Electronic journals and full-text resources
- Reference books
- Print journals
- Internet Resources
- Librarian's contact information

- Other subject guides

Librarians can customize subject guides and instructional handouts to meet individual course or project requirements.

Additional Information

Most full-text electronic articles are available in at least one of two universal formats: HTML or PDF. Articles in HTML format lend themselves to higher readability on various sizes of displays and at different screen resolutions because the text wraps naturally (The text lines are not limited to a fixed width.) and there are no page boundaries; however, these documents might not print very well (some objects in HTML documents cannot be printed at all). The PDF documents are usually pre-formatted for printing, but may be difficult to read on a display due to the fixed line widths and margins that mimic print on paper. Students need to be aware that the Adobe Acrobat Reader application will have to be downloaded and installed in order to view PDF documents. However, instructors can help here by providing a link directly to Adobe's Acrobat Reader download page.

Faculty need to plan for submitting copyright permission requests to authors weeks in advance of posting electronic versions of print articles. They also need to be aware that some authors may not grant permission, requiring faculty to make other arrangements or find other sources.

Access to external electronic resources is usually controlled either by IP address ranges or by username/password authentication. Librarians can inform the faculty of how each resource can be accessed. If available, faculty and students who are outside the allowed IP address range or firewall may still be able to access the electronic resources through a proxy service⁴. Some proxy systems validate users by their university identification number. Since username/password authentication can be compromised (illegally shared with unqualified users), the most common resource access method employed by on-line resource publishers is IP address ranges.

Summary

Libraries have a wealth of resources that are intended to support the university teaching mission. Librarians are trained to support faculty and their students in their research goals. Making class and lab materials available to students is much easier than in the past, largely due to the Internet and electronic documents. Engineering faculty have the ability to place class materials on-line to facilitate access of both required and optional on-line resources for their students. Since not all faculty are technologically savvy, librarians can assist faculty in identifying free websites that can be linked to the faculty's on-line site. Ultimately, the improvement of course websites will benefit students and create a better learning environment.

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