

Mechanical & Aerospace Engineering & ECE 249
Sensors and Actuators
Spring, 2004

Julia Gelfand
Science Library 228
824-4971; jgelfand@uci.edu

This course will introduce you to the following:

1. library instruction in order to conduct appropriate and relevant literature searches in the journal and conference proceedings literature
2. develop the ability to identify and correctly use the Indexing & Abstracting services
3. how to access and retrieve articles from electronic journals remotely
4. how to evaluate Internet resources
5. how to find patents and use patent literature

You have several assignments that will encourage you to use a variety of tools – and this handout will introduce you to them. In order to complete the assigned project, you need to use a variety of information resources and this outline should help you review and navigate your way to the most appropriate material. Access to the majority of these resources is available via the web at <http://www.lib.uci.edu>

1. **ANTPAC** - Online Catalog for UCI – via the web – best method for identifying traditional print, electronic and media titles in the UCI collection - search under **MEMS or Microelectromechanical Systems** as a **keyword** and you will retrieve all books, proceedings and serials where that appears in the title, subject headings or notes in reverse chronological order with most recent publications noted first.
2. **CDL/MELVYL** – Online Catalog for all UC campuses and a gateway to Indexing & Abstracting Services (A&I) – via the web; has incorporated file for periodicals; can be searched by series; and limited to publication form (ie-video, etc); also has family of products by general subjects – ex) “Mechanical Engineering – Electronic Journals available to UCI”

A. REFERENCE TOOLS

1. Encyclopedia of Associations - <http://www.galenet.com/servlet/AU?finalAuth=true> – gives full citation, including membership figures, description & web address of association or nonprofit unit
 2. Directories of parts, companies, labs, etc – see Thomas’ Register, etc.
 3. Conference Proceedings – consult indexing tools, ie) INSPEC, IEEE Xplore
3. **Selected A&I Services** – see UCI Library’s Homepage at <http://www.lib.uci.edu> – go to “Online Resources” and then select “Article Databases” – those noted by* are most relevant to this subject coverage have eLinks to holdings and full-text coverage. All these databases will include **eLinks** to either fulltext access or to print holdings via MELVYL. There may be a gap in the ILLs can be initiated via REQUEST.
- A. **INSPEC*** (1969+) - via OVID
 - B. **IEEE Xplore*** (1988+) <http://ieeexplore.ieee.org/lpdocs/epic03/> (also listed under Full-text journals by publisher)

- C. **EiCOMPENDEX** (1974+) – via OVID
- D. **Current Contents** (1989+) - via OVID - a subset of the Web of Science - will end on July 2004 - will need to rely upon Web of Science after that.
- E. **Web of Science** (1945+) - use **the Science Citation Index** component
- F. **Engineered Materials Abstracts** (1986+)
- G. **PubMed*** (1964+) – access to MEDLINE . You can access UCI electronic

journal holdings in PubMed only by logging in with this URL:

<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?tool=cdl&holding=ucilib.cdlib>

Some hints: use AND/OR/NOT in capitals in search statement

Searching: Enter significant terms of interest (e.g., mems) and click the "Go" button. Use the "Clear" button to erase the contents of the search box. The system will process your search as a keyword search and also "map" it to any subject terms in the database.

Limiting your search: The Limits "button" allows a search to be restricted to certain publication years, languages, article types, research study types, etc. Click on the "Limits" text underneath the search box to apply the limits.

Displaying results and locating articles: UCI and the UC System (through CDL) worked with the National Center for Biotechnology Information (NCBI) to provide access to UCI's electronic journal holdings within the PubMed database.

Remember you can access UCI electronic journal holdings in PubMed only by logging in with this URL:

<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?tool=cdl&holding=ucilib.cdlib>

Use the pull-down menus next to the "Display" button to change the display to the Abstract Format. This record view displays the following information:

1. Journal Source (journal title abbreviation, date of publication, volume, issue, and pagination)
2. Article title
3. Authors
4. Author affiliation (address) of first author at time of publication
5. Abstract (if available)
6. Publication type
7. PubMed & MEDLINE Unique Identifiers
8. AVAILABILITY OF ELECTRONIC FULL TEXT

Click the icon to view the article electronically.

If Electronic Full Text is not available: Use the "check boxes" to mark the articles you want to access. Use the "Order" button on the display bar. This will open a new intermediate window to check on the UCI holdings of each journal (NOTE: You will leave PubMed, to get back to your search use the "back" button.)

Search Details – PubMed uses advanced behind-the-scenes term-mapping techniques to link search terms to MeSH headings and words and phrases found in the record. By clicking on the "Detail" button you can see how the system processed your search. The graphic below illustrates how words and phrases are mapped to MeSH headings.

Manipulating your results. You have 3 choices to record the citations you have found. After marking your citations you can:

A. Click on the "save" button on the display toolbar and download results to a disk as a text file.

B. Click on the "text" button on the display toolbar and print the list of citations out.

C. Write the citations down.

Additional Databases that may be relevant to this course:

H. **Digital Dissertations** (1865+) – free fulltext to UC dissertations; opportunity to read abstracts and order those dissertations that you want from non UC institutions; Requests can be made via Antpac ILL functions and is subsidized for all graduate students.

I. **Expanded Academic ASAP** (1988+) – general subject database; with many articles in 1st generation fulltext

J. **ABI** - another business/management database with significant technology support - increasing fulltext coverage for industry overviews

K. **BIOSIS** (1985+) - covers life and biological science literature with increasing coverage of biotechnology

L. **SciFinder Scholar** (1896+) - database of the American Chemical Society; includes patents. Restricted use to UCI affiliates & not available via the proxy server.

We also have running now through August for two new products - found from the "What's New" link on the left side-bar and then under "Trials"

- **Academic Search Premier**
- **Business Source Premier**

4. **Full-text Online Journals** – see UCI Library's Homepage at <http://www.lib.uci.edu> – go to "Research Resources" and then select "Full-text Online Journals" – ANTPAC is the most current listing of all holdings in all formats but the homepage has some easy steps:

By Journal Title - yes we do have *Sensors & Actuators A(Physical) & B(Chemical)* in print - for A: 1990-1992 in print at TJ 223 T7 S46 and online from 1995 as part of ScienceDirect; for B: 1990-1991 in print at TJ 223 T7 S47 and online from 1995 too. Earlier coverage before the split from 1981-1990 is at TJ 223 T7 S45. There are some new titles, like *Sensors*, only an online journal.

You can also get journal access from the homepage with these alternatives:

A. **by publisher & collection by publishing initiative** – most offer coverage since 1996 – if you select the publisher you can also search the output of those journals; you can get the table of contents, abstracts and full-text in pdf (must have Adobe Acrobat as a browser)

Springer Verlag (LINK)

Wiley

Elsevier (ScienceDirect)
Academic Press (IDEAL)
IEEE *** very key – see **IEEE Xplore**
Kluwer and Chapman & Hall
Blackwell Science
IOP
JSTOR – for journals older than 5 years
ASME - fulltext of all 17 journals
Dekker -

Related Journals are also listed on the CDL collections website.

- B. **Journal Citation Reports** – available from 1999 for SCI & SSCI – www.jcr.com via the Library Homepage – specific subject headings – lists the journals topically. This analytical tool compares citation performance of a given year's worth of journal citations.
5. **Conference Proceedings** – usually published either commercially or by the sponsoring professional association – consult A&I services or the INTERNET search engines for access. The UCI Libraries acquire some conference papers and proceedings – consult ANTPAC or MELVYL by the name of the conference or by the sponsoring group. Many are also available online for current and recent years. See: MEMS Conference sponsored by the IEEE Circuits and Systems Society – <http://www.memscconference.com> and <http://www.memscenter.com>
6. **Patents** – there are numerous databases that index the patent literature. Each country has independent patent indexes and servers. In addition to SciFinder Scholar., the most widespread and user friendly servers are:
- A. US Patent & Trademark Office (Full-text from 1976+ and full-page images of all US patents issued since 1790; beginning March 15, 2001 contains Full-text of all patent applications) – <http://www.uspto.gov/patft/index/htm>
 - B. Patent Searching Tutorial – from the University of Texas, Austin – <http://www.lib.utexas.edu/Libs/ENG/PTUT/putut.html>
 - C. European Patent Office – <http://www.european-patent-office.org/online/index.htm>
 - D. See attached guide prepared by UCSD Librarians, “How to Identify & Obtain Patents.”
 - E. Also LEXIS-NEXIS under "Legal" section and then under "Patents"
7. **Internet Sources** – use an Internet Search Engine to retrieve Internet sites – determine what the domain is - .edu, .org, .gov, .com, .net. Some relevant sources include:
- A. MEMS & Nanotechnology Clearinghouse - <http://www.memscnet.org/>
 - B. MEMS ClearingHouse – <http://memsc.isi.edu>
 - C. MEMS Virtual Learning Cybercenter – <http://www.people.cornell.edu/pages/akt1/memscmain.html>
 - D. MEMS Links – from the University of Cincinnati School of Engineering – has strong set of bibliographic links <http://www.memsc.uc.edu/link.html>

- E. MEMS Exchange – almost a metasite – <http://www.mems-exchange.org>
- F. various Schools of Engineering around the world have MEMS Centers and have specific websites to support them noting current sponsored research.
- G. BIO-MEMS – <http://www.biomems.net>
- H. Links to MEMS Technology Developers – www.ida.org/MEMS/links.html
- I. MEMS Content at Sensors Expo & Conference, Spring 2002 - <http://www.memsconference.com/se02spring>
- J. MEMS Industry Group - <http://www.memsindustrygroup.org/>
- K. MEMS Sensors & Actuators Lab at the University of Maryland - <http://www.ece.umd.edu/MEMS/>
- L. EPO21XX Trade Show for MEMS & Actuators - <http://www.expo21xx.com/automation21xx/sensors-actuators.htm>
- M. Citris Lab at Berkeley - <http://www.citris.berkeley.edu/technology/sensors/tinyos.html>