II. Search the Databases for Journal Articles, Technical Reports, Conference Proceedings and Standards

1. What are databases?

In general, databases are organized collections of information. For example, TSU Library's online catalog is a database as well as electronic periodical indexes that provide full-text articles, including ScienceDirect, Wiley InterScience, and citation Indexes such as CompendexWeb and others. You may locate and access Library's databases online from our web page at http://www.tnstate.edu/library/milcat/databases.htm
In order to use the databases properly, you should be able to understand the ***structure***, ***type***, ***coverage*** and their ***attributes.***

a. Structure-

Databases contain ***records*** that are information about each item within those databases. For example, the Library's online catalog has a record for each book, journal, microfilm, etc owned by it. In turn, each record contains information called ***fields***. The fields in a record may include author, title, publisher, subject headings, and others. Other database records may contain fields that include author, title, title of the periodical, volume number, date, year and page numbers.

b. Type-

The nature of the information contained in a database determines its type. The main types of databases include ***Bibliographic***, ***Full-text Numeric***, ***Image, Audio and Mixed***.
Bibliographic databases do not contain the items, however, they provide information as to where you can find it. The information provided by the Bibliographic database may contain items such as Author, Title, Publisher, Date, Volume Number, Page Number and others that is called "citation". Sometimes they include abstracts (a summary) or descriptions of items. If you are interested in finding records or citations about a certain topic then you can choose to use these

databases to create bibliographies. However, if you want to read the information in its entirety, you will either locate the source given in the record or use a full-text database. An example of a record from a bibliographic database such as an online catalog may look like this:

> ***Title***: Biologically inspired robot behavior Engineering/ Richard J. Duro, Jose Santos, Manuel Grana, editors
> ***Call Number***: TJ211 .B555 2003
> ***Publisher***: Heidelberg; New York: Physica-Verlag, c2003
> ***Subject Heading(s)***: Robotics
> ***Display Related Subjects***
> ***Description:*** xx,438 p.: ill.; 25 cm.
> ***Notes***: Includes bibliographical references and an index
> ***Other Name***: Duro, Richard J.
> Santos, Jose
> Grana, Manuel
> ***Series Title***: Studies in fuzziness and soft Computing
> ***ISBN:*** 3790815136 (alk.paper): $108.00
> ***DBCN:*** ACK-6102
> ***Item Holdings***
> ***Location*** – Shelf-TSU
> ***Call Number***-TJ211 .B555 2003
> ***Volume***-
> ***Material***- Book
> ***Status***- Available

The information we gather from this record is extensive. We obtain the title of the book, author(s) or editor(s), call number, publisher, place of publication, publisher and the year copyrighted and published, subject area of the book, number of preliminary pages, number of pages in the text, whether or not the text contains illustrations, size of the book, whether or not the book contains bibliographical references and an index, names of co-author(s) or editor(s), whether or not the book is part of a series, international standard book number assigned to the book, and the location and the availability of the item you are searching for.
A bibliographic index for journal articles such as

EiVillage-CompendexWeb will provide citations and abstracts on your topic. For example, you may search under Robotics and Manufacturing. You may limit your search to abstracts, to journal articles, to English language only and to certain years. If you used the above example, you will retrieve 149 records which are available to you immediately. Press Datailed Records botton for a full citation for a record. For example, you will retrieve the accession number , title, Author(s), First author affiliation, serial title, abbreviated serial title, volume, issue, issue date, publication year, pages, language, ISSN, CODEN, document type, publisher, abstract, abstract type, Ei main heading, Ei controlled terms, uncontrolled terms, Ei classification codes, treatment, and database.

Full-text Databases

These databases are called full-text because they contain the complete text of publications. For example, **Wiley InterScience** provides full-text articles from scientific journals and books in addition to summaries. For example, a Basic Journal Search under **robotics** will retrieve **500** documents. You may choose to read the abstract to determine if this article is useful for your research. If so you may want to read or print the article. If you would like to retrieve chapters in books about automation, you can search Wiley InterScience under Book search. Your search will yield 5 documents in full-text and/or summary of the chapter.

Numeric Databases

These databases generally provide numeric data, including statistics, financial data, census information, economic indicators and others. For example, **FIS Online** will provide statistical information about companies and countries. **Census Data** would provide statistics about people, business and others.

Image Databases

These are the databases that provide access to art prints, animations, photos and others. For example,

If you access the **Library's Virtual Reference** web page you will find a list of museums and art resources that display images.

Audio Databases

These databases provide access to audio clips to music and sound effects. For example, **Library's Virtual Reference** web page would provide access to the **Internet Public Library Listening Room** where you may listen to and observe the videos of Ray Brooks, Steve Wood Quintet, Pamela Wise, Blue Dog and others.

c. Coverage

The selection of appropriate databases is an important factor in finding relevant information. A description of information covered by a database is usually found in the introductory screen.

Subject Area

Some databases cover a specific subject area or discipline such as engineering, psychology, nursing and others. Others cover areas in more general in nature or a mixture of subject areas. For example, in Engineering, your library provides you access to ScienceDirect, Wiley InterScience, Ei Village-CompendexWeb, MIT Press, SpringerLink, WilsonWeb-Applied Science and Technology Index. You can also find a list of databases according to their subject coverage in the Library's web page under

Databases by Subject at
http://www.tnstate.edu/library/databases_subject.html

Type of Publication-

Databases may contain information from only **periodicals**. For example, **MIT Press** will give you access to periodical articles they publish in the areas of science and technology. Some databases will include information from a **combination of sources** such as periodicals and books. For example, **ScienceDirect**, **WilsonWeb-Applied Science and Technology Index**, and **Wiley InterScience** will provide you with articles from periodicals and chapters from books. Some databases include

only **popular sources** such as magazines and newspapers. You can use these databases for leisure reading. For example, **InfoTrac-Expanded Academic ASAP** will provide you access to some sources related to engineering such as **Popular Mechanics**. On the other hand, some databases **i**nclude **scholarly** materials found in scientific journals, conference proceedings and reports. For example, **Wiley InterScience**, **ScienceDirect** and **MIT Press** will provide access to scientific journals and materials. Databases differ in terms of frequency of **updating** materials, accessibility of the **most recent** periodical articles and the **publication dates** of the materials included. Sometimes publishers put an **embargo** on the availability of the recent issues. For example, while searching the **EBSCOHost,** you may come across some periodicals that are not currently accessible. That is, an embargo has been placed for the last two years. Another feature to consider in selecting a database is the **availability** of the material. You may select a full-text database so that you can read the material immediately. Or you may choose a database that may provide only bibliographic information, however, you library owns a majority of the items. If you are willing to wait, you may use amore comprehensive database that indexed a great number of items your library does not subscribe to but is able to obtain them for you through interlibrary loan. The decision is yours.

d. Attributes

After you make the selection of the databases you would like to use, you will need to determine if the databases use **controlled vocabulary** and if the databases do field search or free-test indexing. In performing searches you will find that some databases use controlled vocabulary which is a specific list of subject terms in organizing the database contents by subject. If you want to retrieve relevant items or information , you should be aware of “controlled vocabulary”. For example, CompendexWeb provides you with Ei Controlled Words. This is a list of subject headings you can use to retrieve the relevant information you need. If you look under Robotics you will find the following

subject headings to chose from:
Subject Headings may be found in special thesaurus, like in ERIC, or provided by the database or in the Library of Congress Subject Headings source. You may search most databases by **subject**, using controlled vocabulary

OR

keyword, by using your own words
Some databases use **field searching** which means term you used is only looked in specific fields. For example, if you are using the Library's online catalog and select the keyword search, your search will locate items with that specific search term in the title, subject or content fields. On the other hand, some databases use **freetext searching** which means that the search term you have selected will locate items anywhere in a document or record. This type of searching may return false drops or irrelevant items because the search term you have located will be located no matter where it is. Some databases may give you the choice for field or free-text searching. Check the sites for this information before you begin your search.

2. Searching Databases

A. Search Strategies –

Your library provides access to over 101 databases. You can search these databases from any computer on campus and/or from off campus sites. In selecting the type of database that will provide appropriate and relevant articles, you may consider the following:

- **subject discipline of your topic** – specialized or multidisciplinary
- **type of resources needed** – basic sources, scholarly sources or professional/trade sources
- **the target audience** – is the research for a term paper, independent study, senior project, thesis or dissertation?

B. *Use of Databases Subscribed by TSU*

Libraries in Engineering

Your Library subscribes to over 101 online databases in general and subject fields. The **databases in subject field – Engineering** include the following that provide the most appropriate and relevant information:

CompendexWeb

Years Covered: **1970-Present**
Relevancy: **BioEngineering, Civil Engineering, Industrial Engineering, Mechanical Engineering, Neural Engineering**
Truncation: *
Search Tips:

1. You need to use truncation **(*)** to search for words that begin with the same letters. For example, **robot*** will return with **robot**, **robots, robotic**, **robotics**, **robotization.**

2. Terms are **automatically stemmed** except in the author field. For example, the word **management** will retrieve **manage, managed**, **manager, managers, managing, management.** You can disable this feature by clicking on " **Autostemming** ".

3. To search for an exact phrase or phrase containing stop words such as and, or, not, near, enclose term in **braces {}** or **quotation marks " ".**
   For example, **{Robotics and Autonomous Systems}** or **"networked robotics"**.

Browse the **author look-up index** to select all variations of an author's name. For example, **Smith, A.** OR **Smith, A.J.** OR **Smith, Allen J.**

MIT Press

***Years Covered*: Varies** by journal titles. You may want to browse journals by subject or title to see the coverage for each journal.
Relevancy: **Aerospace** and **Architecture**
Truncation: ***

Search Tips:

1. You can search this database by **BROWSING** the

journals and/or by searching a phrase or phrases. For example, you can browse the MIT database by journals **subscribed** by your library. In this case you will have access to full-text articles. You may chose the format of the article by clicking next to RealPage, RealPage Plugin, PDF (full-document), PDF (page at a time) and SVG (page at a time). You can also browse by title, subject, publisher and LC Classification of the MIT journals. If you chose to browse **all MIT Journals**, you will only retrieve abstracts of articles that are not subscribed by your library. However, your Interlibrary Loan librarian can obtain articles you need.

2. You can retrieve information from this databases by using the **SEARCH** mode. You can search for articles through **combinations** of **authors, article titles and abstract keywords**. To include the fulltext of the articles, please either check the *Include Fulltext* box, or select *Fulltext* from the drop down list of fields.

ScienceDirect

Years Covered: **Varies by journal titles**. You may want to browse Journals by title, subject and publisher to find out the years covered. Usually the coverage is from the date the journal is published.
Relevancy: Civil Engineering, Computer Science, Energy and Power, Engineering and Technology- Aerospace Sciences, Electronic Engineering, Engineering Mechanics, Environmental Science, General Engineering, Industrial and Production Engineering, Materials Engineering, materials Science, Neuroscience, Numerical Methods in Engineering, Systems and Control Engineering.
Truncation: **(!)** , **(*)**, **(**)**
Search Tips: **(!)** Use this wildcard character to find **root word** plus all the words made by adding letters to the end of it. For example, **robot!** would find **robot**, **robots**, r**obotic, robotics.**
(*) Use an asterisk to **replace** characters anywhere in a word, except the first character. Use one astrict for each character you want to replace. For example, **wom*n** would find **woman** and **women.**
(*) Use the asterisk to **hold a space** for variations in spelling at any point in a word. For example, **bernst*** would find both the **ei** and the **ie** spelling of the name. If you use **(*)** asterisks at the **end of a word**, they do not all have to be filled, but may find up to the specific number of characters. For example, **transplant**** would find **transplant, transplanted, transplanter**.
Note: **transplant**** does **not** find **transplantation** or **transplanting** because only two wildcard characters are used. To find all the variations of transplant, use the **(!)** wildcard character.
To find a journal or publication you can use the **journal title finder search box**, available when you click on journals on the navigation bar. Alternatively, you can

browse the alphabetical journal list. The journal screen allows you different options for browsing the list. A drop down menu allows you to choose to view the entire journal list available on ScienceDirect {**Subscribed** (by your library) or **Non-Subscribed** (not subscribed by your library)}.
Quick Search – can be performed for an **author**, **subject** of interest. The search will look for any relevant results from abstracts, titles, authors and article keywords. Enter the search terms into the Quick Search bar beneath the main navigation bar. You can search all Full-text Sources, All Journals, This Journal, This Issue, This article, etc. You may use the Boolean syntax to produce precise results. It is better not to use words that are too general, such as "cell" or "behaviour" as they will retrieve too many results.
Basic and Advanced Searching- will perform accurate or detailed search queries, improve the relevancy of the retrieved articles or save your search queries. With this type of search you can search across all journals, a subset of journals (by subject), abstracts databases, Scirus, etc. Additionally, you can specify to search for your phrase within the abstract, title, author, references, or full-text of the content. You can also limit your search by date or the journal volume, issue and page number.
Search Within Results- will enable you to refine your Search. You can run a new search that is restricted to the list of articles you are already viewing. You can perform unlimited number of refinements, each time restricting your search to only the list of results you already have. Each stage of refinement appears in the search history, allowing you to return to any stage of your search at any time.
Search Using Scirus- You can search across the entire web for additional scientific information via Scirus tab on the search form. This search complements the content available on ScienceDirect. A Basic Search under Robotics retrieves 2,663 articles, a search under Scirus that searches the entire web renders 321,293 entries.

SpringerLink

Years Covered:
Relevancy: **Computer Science**, **Engineering**
Truncation: **(*)** asterisk substitutes any character from none to Infinite number. **(?)** question mark substitutes exactly one character ***Search Tips***: SpringerLink **Easy Search** will allow you to search for any terms in abstracts and

bibliographic data. Type in one or more search terms and mark how they are to be connected:

• either connected by **AND** (default) to find articles that contain all the terms such as **robotics AND manufacturing.**
• or connected by **OR** to find articles that contain any of the terms such as **robotics OR automation**.
• or search as phrase to find the exact words in this order.
You can also combine the use of phrases with the AND or OR operator. In this case the following syn should be applied:
• phrases must be enclosed by ‘single” or “double” quotes
• there must be at least one space between phrases and terms
• single or double quotes cannot be used within search terms
• phrases consisting of only spaces or special characters (),{},[],\ are not valid expressions. For example, **robotics “car manufacturing”** and choosing to connect them with the **AND** operator will retrieve all documents containing the **word** robotics and the **phrase** car manufacturing with the abstract and bibliographic data. The result list includes bibliographic data of matching articles and links to the abstracts and full-text if available.
The above example retrieved **348,246** documents which needs to be further refined. You can do this by adding further terms in the field available at the top of the results list and clicking on **refine search**, or you can search for further articles by a particular author.
SpringerLink **Expert Search** is structured for terms in specific bibliographic fields and unstructured search in fulltexts.
Offers **4** main options
• search in bibliographic fields
• search in full-text articles
• search by command line
• search by Digital Object Identifier –DOI
SpringerLink **Bibliographic Search** is best suited to searches in specific fields. For example, use this search to find article by a particular author or limit the search to a specific journal.
Fill in your search terms in the field on the left and choose the corresponding bibliographic category:
• abstract
• affiliation
• author (surname or collaboration name)
• keyword
• publication name (title of journal, book series, expert system, or book)
• title (title of the document)
• all categories (to search in all categories listed above)
If you use more than one line in an Expert Search, choose how you wish the search terms in the lines to be connected:
• AND

• OR
• BUT NOT

CrossSearch in PubMed/Medline gives you a chance to continue your search at other sites. If you choose this option your results page will include a link for the same search in Medline/PubMed. You do not need to retype the PubMed query interface; just click on the CrossSearch link and the results are presented immediately on the screen.
SpringerLink **Command-Line Search** is available for both the Bibliographic Search and the Full-text Search. It is intended particularly for persons who are very familiar with advanced search facilities, as using command strings requires a good working knowledge of this method. You may prepare the command line interface by first using the forms of the Bibliographic Search or the Full-text Search. Any search terms entered in these forms will be transferred to the new command line form when you click on Command-Line Search. For example, if in the Full-text Search you enter Fermi in the first line, Dirac in the second line and Dirac in the third line, connect the first two lines with AND and the other two lines with OR and then click on Command-Line Search, you will see the phrase (“Fermi”)AND(“Dirac”)OR(“Fermi-Dirac”) in the box. You can now edit this to “Fermi”)AND(“Dirac”)OR(“Fermi-Dirac”) which is the intended search phrase.
Springer-Link **Full-text Search** covers the largest amount of data. If you use more than one line, choose how you wish the search terms of the lines to be connected:
• AND
• OR
• BUT NOT
For example, robotics and manufacturing but not car manufacturing will retrieve information about robotics in manufacturing but does not include car manufacturing.
Springer-Link **DOI Search** is an identification code for Online version of articles before they are published in print form. DOI, being part of the bibliographic data, can be used as a search term. Make sure you enter the information correctly, complete with any slashes and hyphens it contains. For example,
10.1007/s00214990m180
10.1007/s00399900316
Searching **Landolt-Bornstein**, the uniques, top-quality chemistry, physics and technology data collection. Searchable Landolt-Bornstein texts are already included in

the normal search function and will appear in the results list along with other articles. If you want to search in this collection only, you can access the LB search mask via the Landolt-Bornstein start page. You can choose to search in the tables of contents, the full-text PDF files, the titles only, or the author names only.

Wiley InterScience

Years Covered:
Relevancy: **Computer Science** and **Engineering**
Truncation: *
Search Tips: **Search** allows you to locate articles in a goal directed manner by restricting the scope of the search to individual fields of an article. Results are displayed whenever exact matches are found for search terms. Searching is supported for the following fields:

- Search all text
- Article title
- Section title
- Author
- Keywords
- DIO
- Tables
- Figures

Basic Search allows you to

- select the desired field in the pull-down menu
- specify the search expression in the text field next to the menu. To search using word roots insert the asterisk **(*)** . For example, **robot*** will find results for robot, robots, robotic, etc.
- click on the Begin Search button

Advanced Search allows you to

- find Characterization of materials contents specifically by entering any combination of article title, section title, author, keywords, DOI, table, or figure.
- select the desired field in the first pull-down menu
- specify the search expression in the text field next to the menu. To search using word roots insert the asterisk (*).
- you can specify up to five search expressions, which are combined using AND or OR. For example, you can search for all articles the title of which contains the word “robots” AND are authored by “Young”. As a short cut for OR, you can use the comma “,”. For example, the search expressions:

gene**,** therapy and gene **OR** therapy **returns items that contain either gene or** therapy.

- to limit the search to specific subject areas, select the appropriate subject from the scroll down menu in the Journals in Subject Category.

• to limit the search to a specific date of online postings or to a range of dates, click the appropriate radio button and complete your date selections using the drop-down menus provided.
• click on Begin Search button
To search for **variants** on an author's name, separate the parts of the author's name with AND. For example, to find Joel F. Liebman, enter Joel AND Liebman or Liebman AND Joel. In the Search Results Section you will find the relevancy value of the articles. The **relevancy value** is a number between .01 (partial match) and 1.00 (complete match)
Reference Works/Encyclopedias section allows you to peruse the alphabetically ordered listing of the encyclopedia's articles by clicking on the Articles button on the encyclopedia's homepage or
A-Z button on the navigation bars. For example, you may read articles on robot dynamics, robot kinematics, robot path planning and robots. Article Content Links allow you to follow other
links that help to navigate to points within the article section or to a different article. They may include:
• **equations-** displayed as **"equation (1)",** the link shows image equation where it appears in the article
• **cross references**- displayed as **"(see Name of Article)"**, the link opens the selected article in the window

WilsonWeb- Applied Science and Technology

***Years Covered*: 1983-Present**
***Relevancy:* Aeronautics, Artificial Intelligence, Automatic Control, Automotive Engineering, Civil Engineering,**
Communication and Information Technology, Computer Databases and Software, Electrical and Electronic Engineering, Engineering and Biomedical Materials, Environmental Engineering, Industrial Engineering, Machine Learning, Mechanical Engineering, Neural networks, Robotics and Solid State Technology.
***Truncation Symbol*: ***
Search Tips: You may use **Basic Search** by selecting one or more databases, selecting the Natural language Search or
Boolean Search radio button. Then enter a word or phrase and click start.
To use **Natural Language Search**, you need to enter a phrase or complete sentence. For example, *robots in car manufacturing*
will retrieve 110,648 records *are robots useful in building cars?*
will retrieve 132,369 records To use **Search/Boolean Operators**, enter a constructed search string. For example, *(robots or automation) and car manufacturing* will retrieve 11 records
In Boolean Searches the operators and, or, not and in do not require brackets. To eliminate stemming (variation of a word) include " " quotation marls around the word such as "painting". Paint or painted will not be included in the results.
You can use **wildcard ?** question mark as a substitute for a

single alphanumeric character. It is very useful when you are unsure of a spelling. For example, *einst??n* retrieves the correct spelling of Albert Einstein. You can also use the wildcard operator, **<wildcard>** in a constructed search query to specify a pattern or range of characters. You must enclose the pattern in brackets or braces without spaces. For example, *<wildcard>'robot{s,ics}'* will locate one of each pattern, as robots and robotics.

Advanced Search enables you to enter a word or phrase in the first text entry area and make the appropriate selection from the as: drop-down list (All-Smart Search). When using All-Smart Search query do not use truncation symbols or other special characters. The search results will automatically show the most relevant articles at the top of the set when the Sort by relevance option has been selected. To formulate a search within specific field, select and, or, not and enter additional terms in the secondary area. You can also use the third entry area for a more complex search.

For example,

robotics _____ All-Smart Search

AND

automation _____ All-Smart Search

AND

space programs _____ *All-Smart Search*

sorted by **relevance** will retrieve **374** records.

Databases in general that will provide in formation in the area of Engineering include *ABI Inform, Academies of Science Abstracts, American Chemical Society, BIOSIS Reviews, ChemVillage, Current Research, Dissertation Abstracts,*
EBSCOHost-Academic Search Premier, Emerald,
ERIC, Ethnic NewsWatch, GPO, InfoTract-Expanded Academic ASAP, Lexis-Nexis

3. Locating Print and Electronic Journal Articles

The quickest way to locate and access journals is via Fulltext Electronic, Print and Microform Journal Holdings. You will find this service on the Library's web page. This Service will provide you with

- accessibility to the journals you are looking for
- the list of databases that include the journals you are looking for