

Study Note: *The study of this module will take around 14 hours. Please note that you MUST have internet access to perform the prescribed searches.*

Important Note:

In the exercises and activities that follow, the number of hits (i.e. the number of results or documents found) may be given. However these numbers should be regarded as indicative only, since online databases are updated frequently and the numbers of hits will therefore continually change.

Also, since functionality and screen layout also change regularly, what you see on your screen may differ from what is shown in the Module. The Academy does not take responsibility for the visual changes that patent databases make and we appreciate your sending a note to your tutor or the course administration where you find functional changes to a patent database during the offering of the course so we may adapt the screens in the course content.

MODULE 3: TECHNIQUES FOR SEARCHING PATENT DOCUMENTS

Learning outcomes

On successful completion of this module, students will be:

- aware of the range of patent and non-patent literature search databases available – free and commercial
- aware of the ASPI program and the ARDI, Hinari, AGORA, and OARE programs in the Research4Life partnership, which provide developing countries with free or low cost access to commercial databases
- able to apply the following techniques when searching:
 - truncation
 - Boolean logic
 - proximity searching
 - field searching
 - phrase searching
- able to explain the advantages of using the International Patent Classification system (IPC) and the Cooperative Classification system (CPC), and carry out searches using these systems
- able to explain the uses of patent family searches and carry out such searches

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3.1 Patent document databases

3.1.1 Introduction

As you will have found during your Search Activities in Module 2, anyone who has access to the internet can browse patent databases using free-of-charge or commercial databases. Access to such databases is not restricted by national borders, so users worldwide can easily retrieve patent documents published anywhere in the world. *It cannot be stressed too much that free access to patent information allows you to find a wealth of information on any invention.* As explained in Module 1, one of the fundamentals of the patent system is the public availability of patent information.

Data in text and picture form can alternatively be accessed on an optical disc such as a CD-ROM. Users do not need special internet connections, and can simply work with a CD-ROM drive and a computer. However CD-ROM databases are not easily updated as on-line databases. Also, it is difficult to compile searched information statistically because the relevant data may be spread across different CD-ROMs.

3.1.2 Free patent search databases: Espacenet, Patentscope, USPTO etc.

Many Patent Offices have launched free patent information databases. Important collections are to be found in:

Espacenet hosted by the European Patent Office at

<https://worldwide.espacenet.com/> and

Patentscope hosted by WIPO at

<https://patentscope.wipo.int/search/en/search.jsf>.

These databases include documents from around the world, but their collections are not identical.

The Full-Text and Full-Page Image Database of the United States Patent and Trademark Office (USPTO) at <https://www.uspto.gov/patents-application-process/search-patents> was one of the first free online databases. Coverage is however restricted to US documents.

Important free databases offering searching in the English language can be found at:

http://211.157.104.77:8080/sipo_EN/search/tabSearch.do?method=init

for documents from the People's Republic of China

<https://www.j-platpat.inpit.go.jp/web/all/top/BTmTopEnglishPage> for Japanese documents

<http://eng.kipris.or.kr/enghome/main.jsp> for documents from the Republic of Korea

A list of free Internet patent databases hosted by various Offices around the world is available at www.wipo.int/ipdl/en/resources/links.html

Other important free databases include:

Google Patents at <https://patents.google.com/>

The Lens at <https://www.lens.org/lens/>

The FDA Orange Book at

<http://www.accessdata.fda.gov/scripts/cder/ob/default.cfm> for generics and trade name searching of drugs approved by the US Food and Drug Administration. Patent numbers can be found here.

These databases work extremely well for searches using keywords, patent numbers, names and classifications; and continue to develop more sophisticated functions for carrying out state of the art searches, legal status searches etc.

Each database covers a different collection of documents; and while one database may contain the full text of a collection of documents another might just include the abstracts. You will notice that the same search carried out on different databases may require the use of different techniques and different commands. Some databases just contain a single national collection; others specialize in a particular technical subject or provide patent collections from multiple countries and regions.

Some databases include *utility models* and *industrial designs* as well as patents since they may provide useful prior art. Utility models, sometimes called *petty patents* or *innovation patents*, are similar to patents but are cheaper, quicker and easier to obtain. However their duration of protection is not as long as it is for patents, and they could be limited to certain field of technologies or claim types (e.g. for product patents and process patents) and may be available only in limited number of countries¹. Industrial designs (sometimes called *registered designs* or *design patents*) protect the shape or appearance of objects. They are typically used in such fields as technical and medical instruments, electrical appliances and vehicles.

It is important to be clear exactly what collections a database contains and how to formulate search queries in that database. For a comprehensive review of technology databases – see WIPO's *Guide to technology databases* at http://www.wipo.int/edocs/pubdocs/en/patents/434/wipo_pub_l434_11.pdf For the most up-to-date information, it is necessary to check the particular database itself.

¹ http://www.wipo.int/sme/en/ip_business/utility_models/where.htm

Other information that may help you as you search includes the list of country codes used to identify patent documents. This is available at

<http://www.wipo.int/standards/en/pdf/03-03-01.pdf>

(eg AT is the country code for Austria).

A list of free-of-charge Internet-based patent database is given below. You might be interested in knowing how different patent databases work. Through the exercises in this module, we will use additional patent databases, thereby widening your actual experience in performing searches. You will notice that while the motivations for the type of searches you need to do are the same, different databases have slightly different characteristics, functionalities and features.

The kind of patent information in these Internet databases sometimes relates to documents from “single IP offices”. Others specialize in specific subject matters or provide patent collections from multiple countries and regions.

- **EPO esp@cenet[®]** (<http://worldwide.espacenet.com/>) - a free online searchable database comprising over **90 million patent documents** from around the world (worldwide 90 countries database)
- **European Publication Server** – (<https://data.epo.org/publication-server/?lg=en>) This page provides free access to all European patent (EP) documents published on a weekly basis.
- **US Patent full text and full image database** (<http://www.uspto.gov/patft/index.html>). This database provides searchable data of United States patents (with US and CPC classification) plus text of claims, description, all from 1976.
- **US Public Pair legal status queries** (<http://portal.uspto.gov/external/portal/pair>) allow the searcher to get legal status information on one or more US patent applications or grants.
- **Japan Industrial Property Digital Library** (http://www.ipdl.inpit.go.jp/homepg_e.ipdl) allows searching of the Patent Abstracts of Japan (PAJ) by keyword, IPC classification, and a range of other options using an English language search interface.
- **WIPO/PCT** (<http://www.wipo.int/patentscope/search/en/search.jsf>). This database contains text and images of 58mn international applications filed under PCT (including revised, amended etc.) and otherwise globally from 1978.
- **Australia** (<http://pericles.ipaustralia.gov.au/ols/auspat/quickSearch.do>) allows searching of all Australian patents in one location.
- **Biotechnological US patents** (<http://www.ers.usda.gov/Data/AgBiotechIP/>)
- **Canadian Intellectual Property Office patent databases** (<http://brevets-patents.ic.gc.ca/opic-cipo/cpd/eng/introduction.html>)
- **European Coating Patents Database** <http://www.european-coatings.com/>
- **Freepatentsonline** (<http://www.freepatentsonline.com/search.html>) free site for searching US patents, EP documents, PCT patent applications and JP abstracts on the web.
- **Republic of Korea**

http://engportal.kipris.or.kr/engportal/search/total_search.do

- **New Zealand**
(http://www.iponz.govt.nz/cms/patents/banner_template/IPPATENT)
- **UK Patent Database** (<http://www.ipo.gov.uk/patent.htm>) is the British Patent Office's links to the UK patent register and search on esp@cenet for UK documents only.
- **German Patent Database** (<http://depatinet.dpma.de/>.) The database is hosted by German Patent Office offering links to Adobe Acrobat copies of German patents and many foreign patents.
- **Latipat** (<http://lp.espacenet.com/>) allows searching of patents from many Latin American countries. The documents cannot be searched using the English language.
- **Chinese database** (<http://english.sipo.gov.cn>) provides searching in English with machine translation. (See Search Activity)
- **Eurasian database** (<http://www.eapatis.com/ensearch/>) provided in the English language
- **Egyptian database** (<http://www.egypo.gov.eg/Search/default.aspx>)
- **African Patents - (ARIPO / OAPI) -**
(http://worldwide.espacenet.com/advancedSearch?locale=en_EP) can be accessed by typing oa or ap as the publication number
- **Spanish Patents and Utility Models -**
(<http://www.oepm.es/en/index.html#<http://www.oepm.es/en/index.html>>) in the English language
- **Indian Patent applications -** (<http://ipindiaservices.gov.in/publicsearch/> or <http://www.pfc.org.in/db/db.htm>)
- **Singaporean Patents -**
(<http://www.ipos.gov.sg/Services/FilingandRegistration/GettingStartedwitheServices/eSearch.aspx>) allows searching of Singaporean published patents.
- **Indonesian patent database -** (<http://www.dgip.go.id/#> or <http://e-statuski.dgip.go.id/>)
- **Hong Kong patent database**
(<http://ipsearch.ipd.gov.hk/patent/main.jsp?LANG=en>)
- **Ukrainian patent database** (<http://www.ukrpatent.org/en/index.html>) click the English link, free registration to search with limited functionality
- **Romanian patent database**
(http://www.osim.ro/index3_files/database/datab.htm) in the Romanian language
- **Cambodia life science patents and patent applications from the PCT, US, Australian and EPO databases** (<https://www.lens.org/lens/>)
- **FDA Electronic Orange book -** (<http://www.fda.gov/cder/ob/default.htm>) for generics and trade name searching of actives approved by the Food and Drug Administration in the United States. Patent numbers can be found here.

Note: The above list is a non-exhaustive selection of the more popular databases available for search at no cost. Many more links are available over the Internet.

Still, as databases are dynamic and change regularly, access to them is not always guaranteed. .

There are a number of private companies that have free or commercial databases. Some of these are: **Thomson Innovation, Patbase, Derwent Patent Index, Dialog, STN, Questel, Lens, FPO, Google Patents**, etc. Commercial services offer enhanced or added value to patent information search based on the actual requirement of the particular end users. Commercial database companies offer different types of clearing procedures or fees. Some collect a flat fee in advance that expires after a certain period of time. Others calculate a fee based on the time spent on using their database plus by charging document royalties, or offer no cost on time spent, but charge slightly higher document royalties.

Information about a search site changes rapidly and improvements are made regularly. Example 1 of this module shows typical information about one country's patent information (in this case Australia) that a professional patent searcher would already know or want to find out before beginning a search.

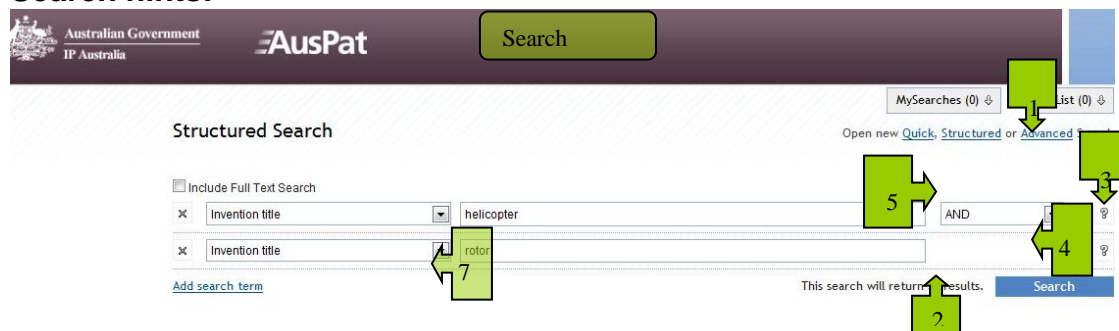
Other information that may help to search includes the list of intellectual property related country codes which is available at <http://www.wipo.int/export/sites/www/standards/en/pdf/03-03-01.pdf> (e.g. AT is the designated 2 letter country code for Austria).

Example 1

Internet address (considered to be the authoritative source):

<http://pericles.ipaustralia.gov.au/ols/auspat/nojsStructuredSearchPage.do>

Search hints:



1. choose type of search
2. number of results expected, before searching
3. see Help and Guides specific to this search site
4. choose Boolean operators Navigate between results
5. Refine or change your query
6. View more information
7. Recall your search parameters
8. Legal status information

Results screen ← 5

Search Results

[Search within results](#) [Refine your query](#)

Your search for
Invention title = "helicopter" AND
Invention title = "rotor"
returned 32 results.



« First [Last](#) » | Page 1 of 4 | « Prev [Next](#) »

Jump to page

[Customise columns/data](#) [Include specification text search context?](#)

Results per page

Application number	Title	Applicant(s)	Inventor(s)	Filing date	Application status
1 2009268036	Method, apparatus and system for reducing vibration in a rotary system of an aircraft, such as a rotor of a helicopter	Carnehammar, Lars Bertil	Seitz, Norbert	2009-07-08	FILED
2 2006340075	Helicopter rotor yoke and method of making same	Bell Helicopter Textron, Inc.	Baskin, Bryan K.	2006-02-24	LAPSED
3 2002321912	Helicopter main rotor blade balance weight retention assembly	BELL HELICOPTER TEXTRON INC.	Sehgal, Ajay; Powell, Ernest A.; Kuhns, Norman	2002-08-02	LAPSED
4 2002306497	Coaxial helicopter with one cyclic pitch control rotor	AIRSCOOTER CORPORATION	Rock, Eugene F.	2002-02-14	LAPSED



Boolean: AND OR NOT
Other operators: IN TO () “ ”

Wildcards: () - ? *

Date range coverage: complete

Update cycle: daily

Other known Internet addresses for searching patent information from this country:

<http://worldwide.espacenet.com/>

Other comments: searching full text is available

\$ indicates a cost to search the mentioned database

3.1.3 Search Activity – Practising with different databases

Action A: Think of a topic you would like to search such as *catamarans* or *tree shelters* or *board games*. Choose three of the above mentioned databases.

Action B: Access one of patent databases using the internet address from the list given in section 3.1.2 above.

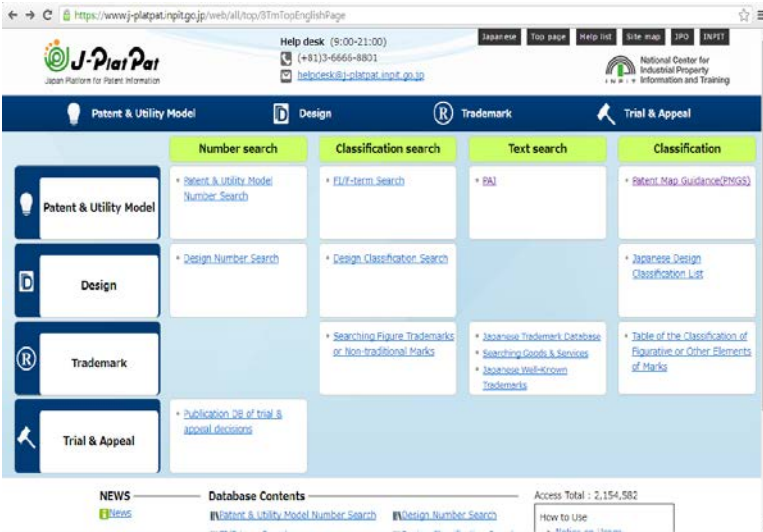
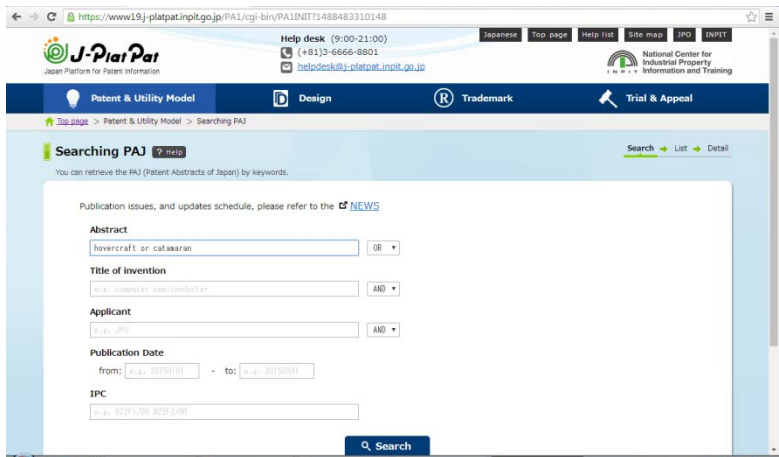
Action C: In Module 2 you were asked to input the keywords in a specific field. In this activity, please find out where you can input your keywords and see how many results you get.

Action D: Look at how the results are arranged. Look at how you can find more detailed information about each of the results. Are these similar to the way information was displayed in the other databases described in Module 2?

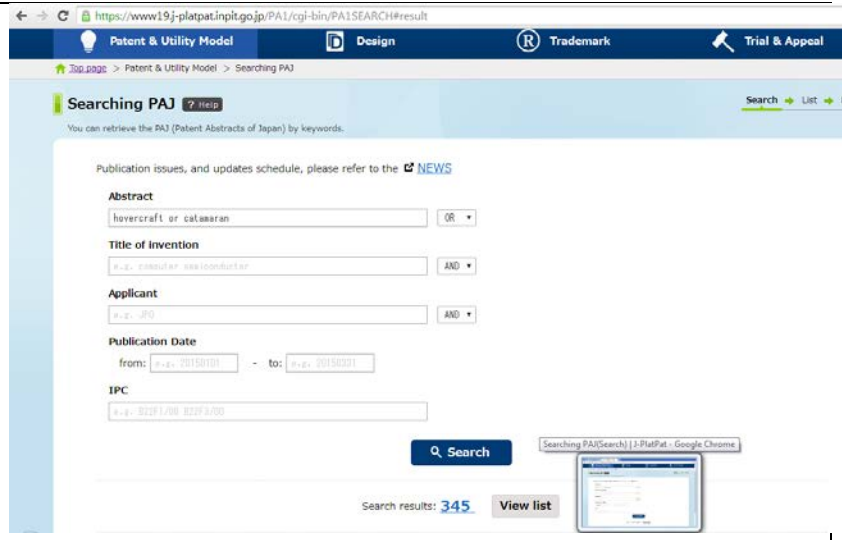
Action E: Now go to the second database you have chosen and put in the same keywords. Do you see differences in the way you need to put in the keywords? Do you see differences in how many results are found and how the information is presented?

Action F: Perform the same search for the third database you have chosen. For convenience write your results down on the simple grid given below. The first one has been filled in for you. As you can see, it has been done on the Japanese database.

Action G: Please send the result of your searches in the three databases to your tutor for comments.

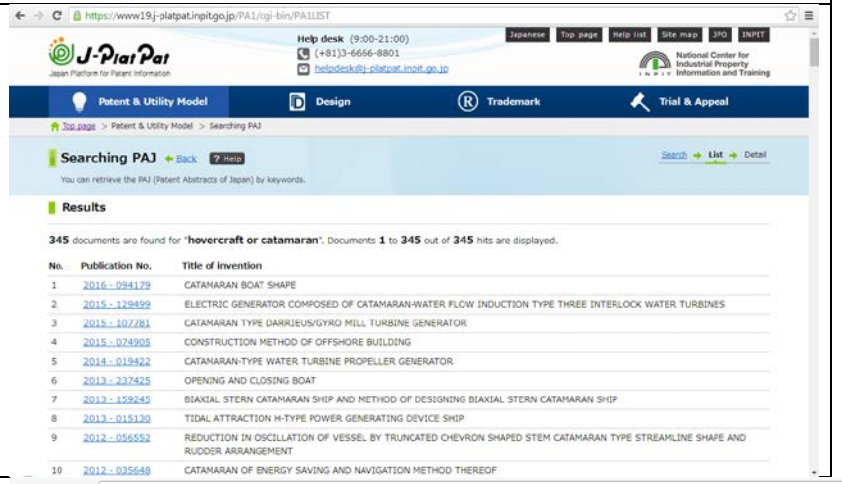
<p>Database name</p>	<p>Japanese patent search (J-Plat Pat)</p>
<p>Internet address?</p>	<p>https://www.j-platpat.inpit.go.jp/web/all/top/BTmTopEnglishPage</p>  <p>Select PAJ under Text search</p>
<p>What is the subject of the search?</p>	<p>hovercraft OR catamaran</p>
<p>Where were the keywords entered?</p>	<p>Abstract field</p> 

Number of hits (results found)?

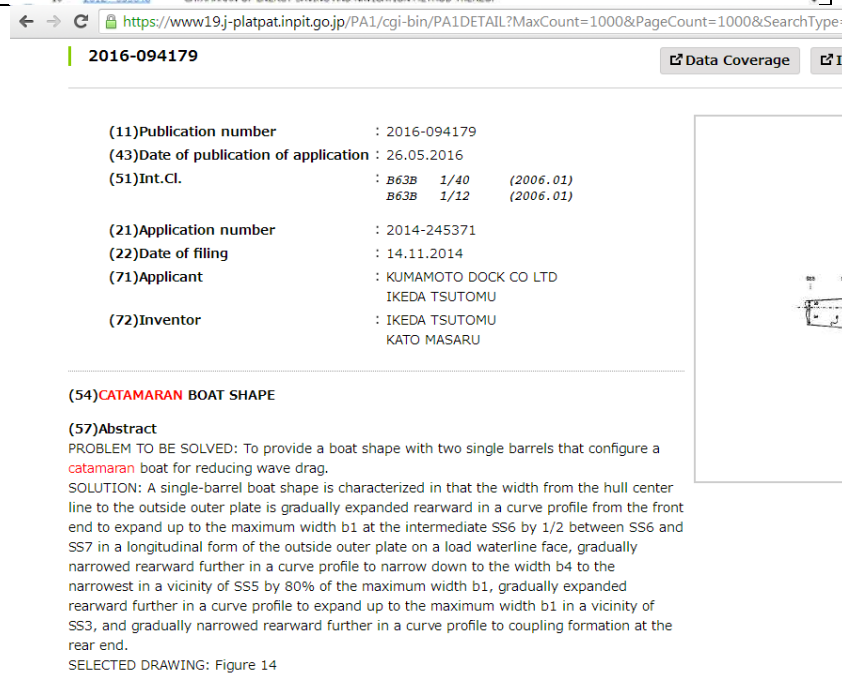


345 hits

View list



Click on the first hit



How are the results

Results are clearly presented in plain English.

presented?	Only abstracts are available and seem to be based on machine translated text
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3.1.4 Commercial databases

A number of private companies host patent databases which charge the user, for instance: Derwent, Dialog, STN, Orbit, Micropatent, WIPS Global, Patent Analysis) Thomson Innovation and TotalPatent. Commercial services offer enhanced or added value to patent information based on the requirements of subscribers. There are various ways of charging, including: flat fees payable in advance that expire after a certain time; fees based on the time spent searching; fees based on the number of documents looked etc, etc.

3.1.5 ASPI

The Access to Specialized Patent Information (ASPI) program is a public-private partnership administered by WIPO and made possible through cooperation with leading patent information providers. Through the ASPI program, eligible Patent Offices and academic and research institutions in developing countries can receive free or low-cost access to sophisticated patent information search tools. Eligible countries are listed at <http://www.wipo.int/aspi/en/eligibility.html>

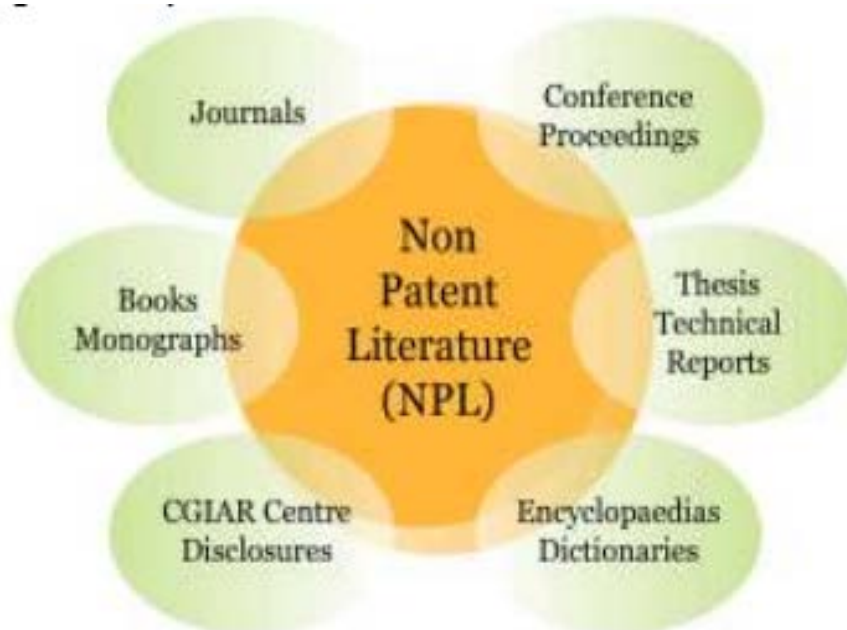
Current partners with WIPO in the ASPI program are following patent information providers LexisNexis, Minesoft, ProQuest(1), Questel, Thomson Reuters, WIPS, Gridlogics and Ambercite. For more information see <http://www.wipo.int/aspi/en/>

3.2 Non-Patent Literature (NPL)

3.2.1 Introduction

NPL includes periodicals, books, reports, scientific papers and journals, technical manuals, advertisements, and any other published literature which is not in the form of patents.

A few examples are depicted below (Source: CGIAR, "CGIAR centre publications as prior art")



Comprehensive details of NPL databases can be found in the WIPO *Guide to Technology Databases* referred to above. The tables below, which are derived from the *Guide*, are not exhaustive, but give an overview. Again, for the most up-to-date information, it is necessary to check the particular database itself.

Search services (free)

Google Scholar	http://scholar.google.com
NCBI	https://www.ncbi.nlm.nih.gov/
PubChem	https://pubchem.ncbi.nlm.nih.gov/
PubMed	https://www.ncbi.nlm.nih.gov/pubmed
PubMed Central	https://www.ncbi.nlm.nih.gov/pmc/

Search services (commercial)

ProquestDialog	http://www.proquest.com/
Scopus	https://www.scopus.com/
STN	http://www.stn-international.de/
Thomson Innovation	http://www.thomsoninnovation.com

Journal databases (free)

Directory of Open Access Journals	https://doaj.org/
SciELO	http://scielo.org/

Journal databases (commercial)

American Chemical Society	http://pubs.acs.org/
IEEE Xplore	http://ieeexplore.ieee.org/
ScienceDirect	http://www.sciencedirect.com/
SpringerLink	https://link.springer.com/
Wiley Online Library	http://onlinelibrary.wiley.com/

There is of course a great deal of other material available for free on the internet.

3.2.2 ARDI, Hinari, AGORA, OARE – Research4Life

To assist developing countries, **ARDI** (the Access to Research for Development and Innovation program) provides free or low cost access to scientific literature. Local, not-for-profit academic and research institutions and national intellectual property/patent offices in eligible countries may register for access. Eligible countries are listed at <http://www.wipo.int/ardi/en/eligibility.html>. Currently, 31 publishers provide access to around 28,000 journals, books, and reference works for 117 developing countries and territories through ARDI.

ARDI is coordinated by WIPO and its partners in the publishing industry in order to improve access to scientific and technical information in developing countries. The aim is to reinforce the capacity to participate in the global knowledge economy; and to support researchers in creating and developing new solutions to technical challenges faced on a local and global level. Particularly in fields such as biotechnology and organic chemistry much of the most relevant and up to date material is contained in science journals. For more information, see <http://www.wipo.int/ardi/en/>

ARDI is a member of the *Research4Life* partnership at <http://www.research4life.org/about/>. Research4Life is a public-private partnership of the WHO, FAO, UNEP, WIPO, Cornell and Yale Universities, the International Association of Scientific, Technical & Medical Publishers and up to 185 international scientific publishers. The goal of Research4Life is to reduce the knowledge gap between high-income countries and low- and middle-income countries by providing affordable access to critical scientific research.

Since 2002, the four programmes – Research in Health (Hinari), Research in Agriculture (AGORA), Research in the Environment (OARE) and Research for Development and Innovation (ARDI) – have provided researchers at more than 8200 institutions in more than 115 low- and middle-income countries with free or low-cost online access to up to 77,000 leading journals and books in the fields of health, agriculture, environment, and applied sciences.

ARDI is described above. The other programmes, in more detail, are:

The **Hinari** Program of the World Health Organisation (WHO) which enables developing countries to gain access to one of the world's largest collections of biomedical and health literature <http://www.who.int/hinari/en/>

The **AGORA** program set up by the Food and Agricultural Organization of the UN (FAO) and major publishers which enables developing countries to gain access to a major digital library in the fields of food, agriculture, environmental science and related social sciences <http://www.fao.org/agora/en/s>

OARE - Online Access to Research in the Environment is coordinated by the UN Environment Programme (UNEP) which enables developing countries to gain access to one of the world's largest collections of environmental science research.

<http://web.unep.org/oare/>

Eligible libraries and their users benefit from:

- Online access to up to 77,000 peer-reviewed international scientific journals, books, and databases
- Full-text articles which can be downloaded for saving, printing or reading on screen
- Searching by keyword, subject, author or language
- Resources available in several languages
- Training in information literacy and promotional support

3.3 Search Strategies

3.4 Introduction

In Module 2 you were introduced to different types of patent search; and will understand that before starting a patent search, you will need:

- access to the internet with access to online patent and non-patent databases
- a list of on-line databases relevant to the search
- a clear idea of the purpose of the search. What is it that you want to achieve?
- a sound understanding of the invention; problem being solved, the advantages that the new product or process brings to the market and how it works
- knowledge of the terminology involved
- a good idea of how to identify keywords and build up basic search strings (search queries);
- a basic understanding of the IPC/ CPC/ ECLA/ USPC to help you target your search
- (possibly) access to any relevant paper based records that are not (yet) online
- (possibly) knowledge and access to of any relevant, printed, non-patent literature such as journals or technical publications

Inventions in patent documents are described primarily by words (although most mechanical inventions also need drawings to be fully understood). You therefore need to be familiar with the terminology applicable to your invention. For example,

when you search for a rubbish compacting process, you need to be aware that a search on the term *trash* will generally only find US derived patents. In many countries, the term *rubbish* is used and a search of both the terms *rubbish* and *trash* is needed. On the contrary, a same word like *Substrate* in semiconductor industry is used for multiple components during various processes in different contexts. It is important to understand the context in which the word may be used in relation to the invention, otherwise the same keyword will result into hundred or even thousands of non-relevant results, during your search. There are many similar examples and to help the searcher there are lists of terms that mean the same thing (*synonyms*), as you will learn in later parts of this module. Also of course we will need to look at how to search documents that are not in English.

To alleviate differences in terminology and the need to create lists of synonyms, there is an alternative approach, and that is to search for concepts rather than keywords. A concept-based search usually involves using a classification system such as the internationally recognized IPC (*International Patent Classification*) or its derivative the CPC (*Cooperative Patent Classification*). Searches often include both keywords and IPC symbols, and may include names and dates. Expert search queries will also make use of various special search techniques, which are explained below.

In the following paragraphs we are going to look at various special techniques for directing and defining our searches. These are *truncation*, *Boolean logic*, *proximity searching*, *field searching*, *phrase searching* and *searching using classifications*.

3.5 Truncation (or stemming)

As the word truncate suggests, this technique involves trimming or shortening the search term to include alternatives with the same stem. This is what we used in Module 2 Search Activity 2.7.1 when we searched *medic** in order to cover all words beginning with *medic*, such as *medical*, *medicine* etc. This is a useful technique for searching a lot of alternatives in a simple way.

Truncation may use *wildcard characters* to substitute for any other character or characters when added to a search string. For instance, an (*) might stand for zero, one, or more than one letter; and a question mark (?) might stand for just one letter. Other databases might use different wildcard characters such as e.g. %, \$, or #.

It is essential to find out how this works in the particular database that you are searching. Some databases allow the wildcard character to be inserted elsewhere that at the beginning of the word, as shown in Example 2, and some databases allow

automatic stemming to be selected so that *circuit* would be automatically searched as *circuit*, *circuits*, and *circuitry*.

Examples 1 to 3 illustrate truncation searches using wildcards; example 4 relates to automatic stemming.

Example 1

A search in Patentscope for *elec** will find documents with words such as electricity, electric, electronic, and electronics. But beware, this search will also find documents containing words like elect, elections, electorate etc., which you are probably not interested in!

Example 2

To find both *sulphate* and *sulfate* in Patentscope, you can search for *sul*ate*. In this case, the base terms or characters you seek to retain in your search result are *sul* and *ate*, but with any variation between these, so *sulfoaluminate* would be included as well for instance.

If you are interested in limiting the number of characters the search engine looks for after the asterisk sign so as to exclude *sulfoaluminate* say, you might use a single character wildcard to find documents containing words where you know only one character has changed.

Example 3

Input *t?re* to find documents containing *tyre* or *tire*. In this case the question mark represents just one character so *texture*, which has four characters between the *t* and the *re*, will not be searched.

Example 4 -Stemming

In Patentscope, when searching on the Advanced search page, selecting 'stem' will mean that a truncation search is automatically carried out by an algorithm which removes common endings from words.

WIPO PATENTSCOPE
Search International and National Patent Collections

WORLD INTELLECTUAL PROPERTY ORGANIZATION

Search Browse Translate Options News Login Help

Home > IP Services > PATENTSCOPE

Advanced Search

Search For:

Language: English Stem: Office: All Specify ⇨

Instant Help Tooltip Help

Search Reset

3.6 Boolean logic

Boolean logic – named after its developer George Boole - allows you to search using Boolean operators such as AND, OR, NOT.

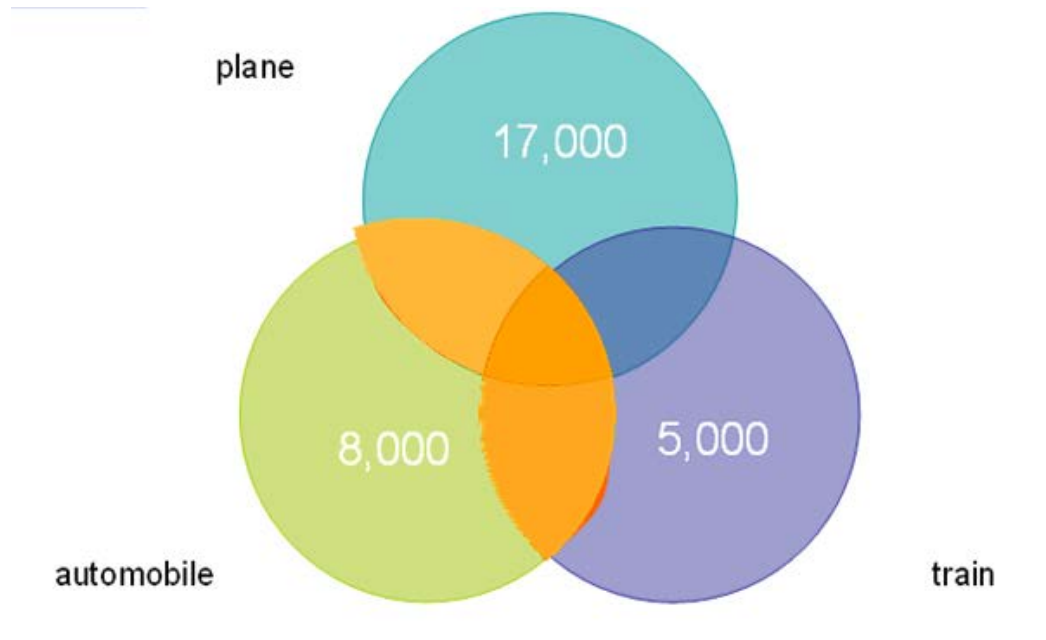
Example 4

If you search the string *train* **AND** *plane* in a patent database, your search will turn up only those documents containing both of these words.

If you search the string *train* **OR** *plane*, your search will turn up all documents containing *train*, all documents containing *plane* and all documents containing both of these words

If you search the string 'train AND plane' in a patent search database, you will receive back a list of all documents which contain both the terms 'train' and 'plane' anywhere on the indexed page, which is usually the front page of a patent document or the whole of patent document as the search is run by a database.

If you search the string 'train OR plane' you will receive back all of the documents which contain either 'train' or 'plane' separately as well as together 17,000 + 5,000.



To illustrate this visually you can see from the purple circle below that if there are about 5,000 applications containing the word train and 17,000 applications (represented by the aqua colored circle) containing the word plane then a query for 'train OR plane', will return all of the about 22,000 documents with some common documents (highlighted in orange) which contain either the word train or the word plane.

But a search using the AND operator 'train AND plane' will give you less results than using the operator OR, as in the example train or plane. In this case there are approximately 100 documents which contain both words; in other words the intersection (highlighted in dark blue) of the 2 circles. The same analogy will apply if we have more than one keyword for search. Hence, 'train AND plane AND automobile' will result 50 documents which is highlighted in red triangle and 'train OR plane OR automobile' will result all the 30,000 documents.

Example 5

Another Boolean operator that can be used is **NOT** which allows you to restrict your list of results to exclude certain words or terms that are of no interest. Thus a search for *train NOT plane* will turn up documents containing *train* as long as the documents do not also include the word *plane*.

This can be a risky strategy however, and should be used with caution. For instance, although you may only be interested in trains, a document describing an invention for use in a plane might also state that the invention could alternatively be used in a train. Since both words are used in this document, it would not be found in the search.

Example 6

Round brackets or parentheses can also be used to group together more than two words in combination with Boolean operators.

Search for, open bracket, *train* **OR** *plane*, close bracket, **AND** automobile like this:
(*train* **OR** *plane*) **AND** *automobile*

In Patentscope, this would return over 7000 documents which contain either the word train or the word plane AND also the word automobile. The use of brackets is sometimes called *nesting*.

For more on Boolean logic see http://en.wikipedia.org/wiki/Boolean_logic

If you are an experienced patent searcher, you will probably be familiar with how these different techniques are used in different databases, i.e. how so-called *search syntax* varies from one database to another.

It's important to familiarise yourself with the peculiarities of the database you are going to search by learning from the information provided there, and by trying a couple of experimental searches before you start the proper search.

3.6.1 Search Activity – Barking dogs

This search Activity uses truncation techniques and the Boolean operators AND and OR.

"August 18, 2005 - The bark stops here! Variety International announced today the long awaited release of their new pet product, the K9 Kalmer. This is the only anti-barking device on the market that does not use pain or irritation to alter a dog's behavior. What makes the device unique is that it uses proprietary ultrasonic musical compositions - songs that are inaudible to humans - to calm anxious pets. Specifically, the K9 Kalmer was designed to stop irritating dog barking. "

Source: <http://www.gizmag.co.uk/go/4451/>

Find a patented device which stops pets from roaring, using truncation in Espacenet

Hint: Remember that ? replaces 0 or 1 character(s),* replaces any number of characters from zero. The Boolean operator AND will identify documents which include both search terms and OR will provide you with more documents by including documents in which either search term appears.

3.7 Proximity searching

Proximity searching allows you to search for terms that appear near one another. Sometimes “near” means the two terms appear within a preset number of characters of each other (within 5 characters in Patentscope). Alternatively, the number of characters can be specified by the searcher.

Searching for *mobile* NEAR *networks* will be better targeted than a search for *mobile* AND *networks* where the two terms are not required to be near each other.

3.7.1 Search Activity - Optical mouse

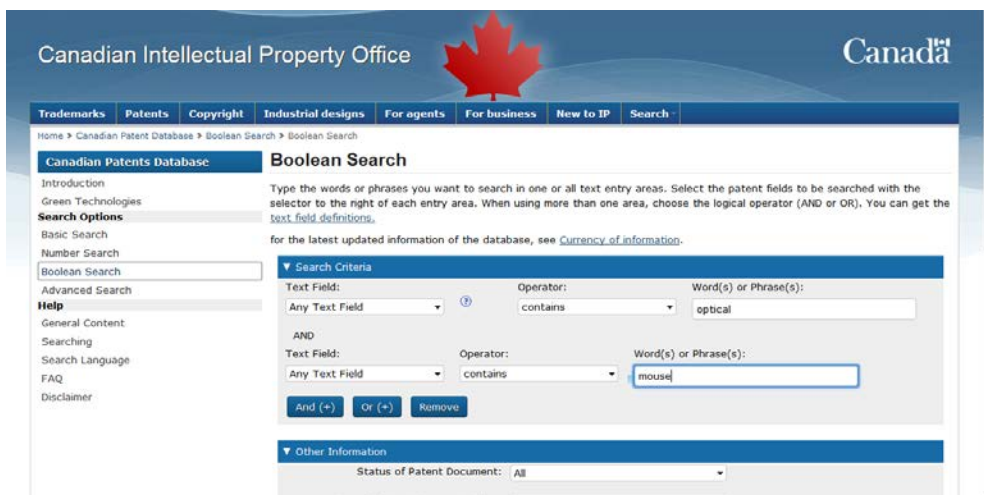
Compare different ways of searching for *optical mouse* in Patentscope by inputting:

- (1) *optical mouse*, which gives over 2,000 hits
- (2) *optical near mouse*, which gives over 1,100 hits
- (3) “*optical mouse*”~3, which gives 1,066 hits.

This demonstrates the increase in search precision that options (2) and (3) give over option (1), and to a lesser extent that option (3) gives over option (2).

3.7.2 Relevancy ranking

Access the Canadian database at <http://brevets-patents.ic.gc.ca/opic-cipo/cpd/eng/introduction.html> and search for *optical* AND *mouse* in Boolean Search.



The screenshot displays the Canadian Intellectual Property Office (CIPO) Boolean Search interface. The header includes the CIPO logo and the word "Canada". The navigation menu contains: Trademarks, Patents, Copyright, Industrial designs, For agents, For business, New to IP, and Search. The breadcrumb trail is: Home > Canadian Patent Database > Boolean Search > Boolean Search. The main content area is titled "Boolean Search" and includes instructions: "Type the words or phrases you want to search in one or all text entry areas. Select the patent fields to be searched with the selector to the right of each entry area. When using more than one area, choose the logical operator (AND or OR). You can get the text field definitions." Below this, there is a link for "Currency of information". The "Search Criteria" section shows two search entries: 1) Text Field: Any Text Field, Operator: contains, Word(s) or Phrase(s): optical. 2) Text Field: Any Text Field, Operator: contains, Word(s) or Phrase(s): mouse. There are buttons for "And (+)", "Or (+)", and "Remove". The "Other Information" section shows "Status of Patent Document: All".

There are over 200 hits:

Canadian Patents Database Search Results

Query: Search Searched on : 2017-03-03 10:23:13

229 documents out of 2,285,222 matched your query.

Show 10 entries Search:

#	Patent Number	Patent Title	Score
1.	2502235	PEN-SHAPED OPTICAL MOUSE	100%
2.	2699983	OPTICAL MOUSE	99%
3.	2549096	CONTROL APPARATUS FOR USE WITH A COMPUTER OR VIDEO GAME SYSTEM	98%
4.	2706344	OPTICAL MOUSE	97%
5.	2706373	DIFFUSE OPTICS IN AN OPTICAL MOUSE	97%
6.	2364189	IMPROVED LOYALTY LINK METHOD AND APPARATUS FOR INTEGRATING CUSTOMER INFORMATION WITH DEALER MANAGEMENT INFORMATION	93%
7.	2848000	SINGLE OPTICAL FIBER KVM EXTENDER	92%
8.	1289264	DETECTOR SYSTEM FOR OPTICAL MOUSE	92%
9.	2930878	SYSTEMS, APPARATUSES AND METHODS TO ENCOURAGE INJECTION SITE ROTATION AND PREVENT LIPODYSTROPHY FROM REPEATED INJECTIONS TO A BODY AREA	90%

Note that there is a column in the results list showing percentages. These percentages are generated by an algorithm to indicate which documents most closely match your search criteria. These relevancy rankings can sometimes be a useful tool to fine tune your search strategies particularly at the beginning of the process. Although computer algorithms are no substitute for a human brain, they can help speed the process up.

As you scroll down the list of results on the Canadian site, you will find that the percentage value relating to relevancy decreases, which means that the most relevant results are likely to be at the beginning of the list

To find out more about relevancy rankings in general see [http://en.wikipedia.org/wiki/Relevance_\(information_retrieval\)](http://en.wikipedia.org/wiki/Relevance_(information_retrieval)).

3.8 Field searching

Most databases will allow you to choose which *field* to search in. You could search a name throughout the document, but the search would be better focussed if you limited the search to the field of *Inventor's Name* or the field of *Applicant's Name* as appropriate.

Similarly when searching using a keyword, you might wish just to search the title, or the abstract or the whole document. For instance, searching *hovercraft* in the whole document will give a large number of hits, many of which however will just include incidental mentions of hovercraft. By contrast, if the word *hovercraft* is in the title, it is much more likely that the invention itself will relate to hovercraft.

There are various ways that databases enable you to direct your search to a particular field – as illustrated in the following search activity.

3.8.1 Search Activity – Selecting fields

Go to the Australian site:

<http://pericles.ipaustralia.gov.au/ols/auspat/structuredSearchPage.do> and search for the word *hovercraft* in the title field. .

3.9 Phrase Searching

Many patent databases allow *phrases* to be searched ie a group of words which is treated as a single search term. This form of searching is very specific.

Example 7

In Espacenet on the Smart Search page, search for *SMS text messaging*. This gives over 400 hits, and the searched words can be in any order.

Now try searching for the phrase “*SMS text messaging*” (i.e. with the words enclosed between inverted commas). This returns only about 40 documents, and these have the phrase “*SMS text messaging*” with the words in the order specified, and no intervening words.

This technique enables a search to be tightly focussed, but caution is necessary. In this example, note that documents containing *SMS* followed directly by *messaging*, will not be on the results list.

In Espacenet, you can also use phrase searching in other fields, for instance you could search for the phrase “*General Motors*”.

3.9.1 Search Activity – Merial or Merial Limited

In Espacenet, find how many patent documents are in the name *Merial Limited*. You should avoid retrieving those documents originating from France where the assignee name is simply *Merial*.

Go to the USPTO granted (issued) patents database find how many patents have been granted for the applicant “Merial Limited”. Further, try out the assignee search for “Merial Limited”. Why do you think there is a difference?

After navigating to <http://patft.uspto.gov/netahtml/PTO/search-bool.html> or

<http://patft.uspto.gov/netahtml/PTO/search-adv.htm>

(the issued patents advanced search page) you will see there is a table defining field codes.

AANM is the field code for Applicant, applicant is an entity who applied for the patent in first go itself.

3.10. The International Patent Classification (IPC)

3.10.1 Introduction

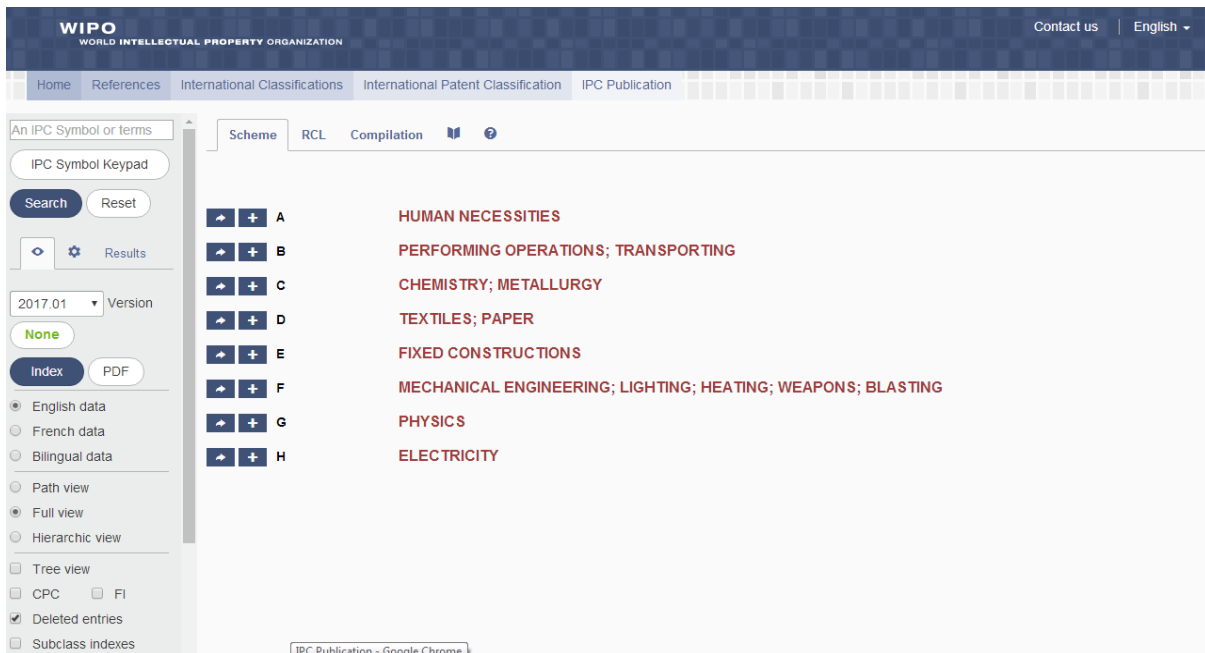
The International Patent Classification (IPC) is a single system used by countries across the world to classify patent documents. The IPC was established in 1971 under an international multilateral treaty which is administered by WIPO, the *Strasbourg Agreement*. The IPC provides an effective search tool for the retrieval of patent documents; and facilitates the dissemination of patent information, investigations into the state-of-the-art of given fields of technology, and the preparation of intellectual property statistics.


IPC symbols are allotted to each patent document by the national or regional patent office which issues the document, and are printed on the front page. In order to improve the system and take account of technical developments, the classification is continuously revised and a new edition is regularly published.

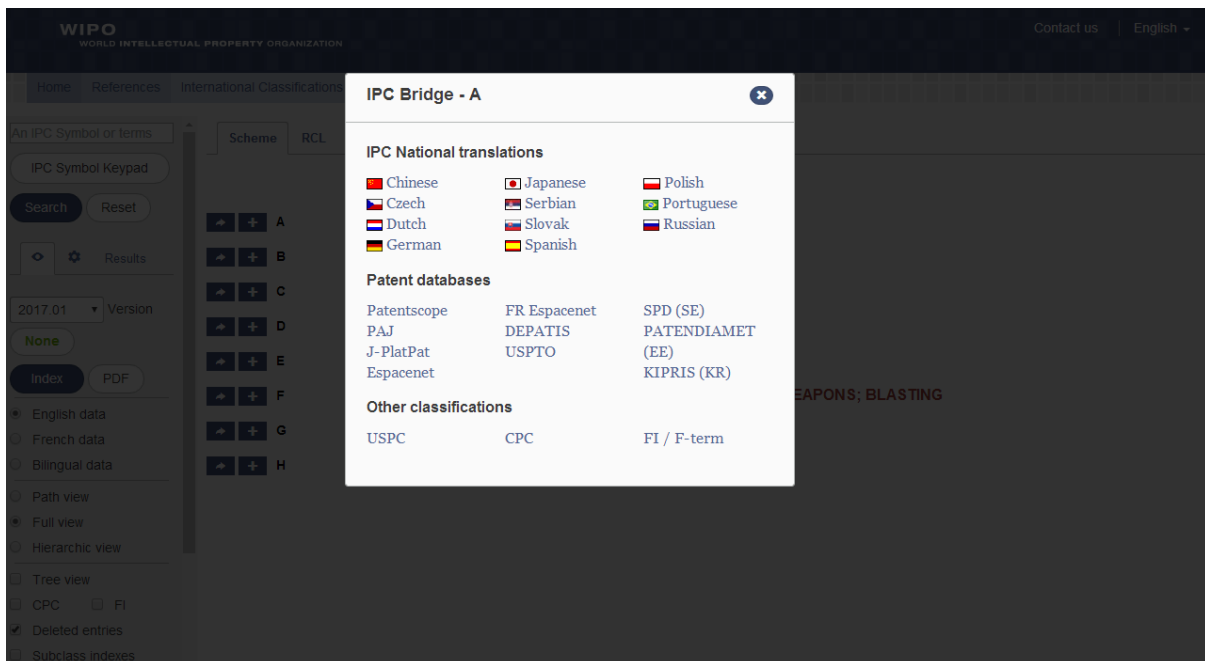
The IPC is used in more than 100 countries for classifying patent documents. As such, it is a very powerful tool for searching patent databases. A great strength of the IPC is that similar inventions described using different words and in different languages should all be given the same classification symbol. That symbol can then be used by any searcher to find patent documents in any language relating to the subject covered by the symbol. Searches can be made using IPC symbols alone or in combination with keywords, applicants' names etc.

Some countries have their own national classification system. These are powerful tools for searching the national databases of those countries, but only those databases. The IPC can be used to search patent documents worldwide.

In order to improve the system and take account of technical developments, the IPC is continuously revised and a new edition is regularly published. The IPC is published in two official languages, English and French. The English version is available at <http://web2.wipo.int/ipcpub/#refresh=page>.



By clicking on one of the arrows on this web page , links can be found to translations of the IPC into various languages (Chinese, Czech, Dutch, Estonian, German, Japanese, Korean, Polish, Portuguese (Brazil), Serbian, Slovak, and Spanish) plus links to various patent databases; and to other classification systems: including the USPC, the CPC (Cooperative Patent Classification described below) and the Japanese F-term system.



A major part of the world patent documentation has been reclassified according to the current edition (this means that IPC symbols have been updated on many older patent documents). However, previous editions of the IPC which are also available in

English and French, can be used for searching in patent databases which contain documents classified according to earlier editions of the IPC. For example, the seventh edition was in force from January 1, 2000, to December 31, 2005, and may be used for searching patent documents published in this period. Earlier editions of the IPC can be found at

<http://web2.wipo.int/classifications/ipc/legacyipcpub6#refresh=page>

The screenshot shows the WIPO IP SERVICES page for the International Patent Classification (IPC). The main content is a table with the following structure:

Version	Scheme	RCL	Compilation	Catchwords	Guide to the IPC
2016.01	A				HUMAN NECESSITIES
Version 1	B				PERFORMING OPERATIONS; TRANSPORTING
Version 2	C				CHEMISTRY; METALLURGY
Version 3	D				TEXTILES; PAPER
Version 4	E				FIXED CONSTRUCTIONS
Version 5	F				MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING
Version 6	G				PHYSICS
Version 7	H				ELECTRICITY

3.10.2 Structure

To use the IPC properly, some knowledge of its structure, rules and layout of classification systems is needed. Basic facts about the IPC are described below. More detailed information may be found in the Guide to the IPC at:

http://www.wipo.int/export/sites/www/classifications/ipc/en/guide/guide_ipc.pdf

The IPC has eight *sections* A to H, which together embrace all fields of technology:

- A HUMAN NECESSITIES**
- B PERFORMING OPERATIONS; TRANSPORTING**
- C CHEMISTRY; METALLURGY**
- D TEXTILES; PAPER**
- E FIXED CONSTRUCTIONS**
- F MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING**
- G PHYSICS**
- H ELECTRICITY**

Each *section* is subdivided into *classes* indicated by a section symbol followed by a two-digit number. For instance **section C, CHEMISTRY; METALLURGY** is divided into a number of classes, one of which is **class C21, Metallurgy of iron**.

Each *class* contains one or *several subclasses* indicated by the class symbol followed by a capital letter. For example, **subclass C21B, Manufacture of iron or steel**.

Each *subclass* is then broken down into subdivisions called *groups*. There are *main groups* and then *subgroups*. Main groups form the primary subdivisions of subclasses and main group symbols consist of the subclass symbol followed by a number and /00 - for example, **main group C21B 7/00 Blast furnaces**.

Finally, *subgroups* form subdivisions under the main group. Their symbols differ from the main group symbols in that have non-zero digits after the /; for example, **subgroup C21B 7/02 Internal forms of blast furnaces**.

So we have:

- sections e.g. *section C, CHEMISTRY; METALLURGY*
- - - divided into classes e.g. *class C21, Metallurgy of iron*
- - - - divided into subclasses e.g. *subclass C21B, Manufacture of iron or steel*
- - - - - divided into main groups e.g. *main group C21B 7/00 Blast furnaces*
- - - - - - divided into subgroups e.g. *subgroup C21B 7/02 Internal forms of blast furnaces*

This family tree type of structure is called a *hierarchical system*.

A main group always embraces everything in its subgroups (e.g. a main group could cover metals and its subgroups could cover aluminium, copper, iron etc.)

Subgroups form their own hierarchical structure inside the main group. The title of each subgroup is preceded by one or more dots indicating the hierarchical position of that subgroup, i.e. indicating that each subgroup forms a subdivision of the nearest subgroup above it having one dot less.

.

This is probably best illustrated by an example. The hierarchical structure relating to the six-dot subgroup H01F 1/053 is as follows:

H01	Basic electric elements
H01F	Magnets; inductances; transformers; selection of materials for their magnetic properties
H01F1/00	Magnets or magnetic bodies characterised by the magnetic materials therefor: Selection of materials for their magnetic properties

- H01F1/01 • of inorganic materials
- H01F1/03 •• characterised by their coercivity
- H01F1/032 ••• of hard-magnetic materials
- H01F1/04 •••• metals or alloys
- H01F1/047 ••••• Alloys characterised by their composition
- H01F1/053 •••••• containing rare earth metals

Documents are generally classified by using complete classification symbols comprising the relevant section, class, subclass, and main group or subgroup, eg H01F1/00 or H01F1/053. There are some 70,000 symbols in the IPC, covering all areas of technology in detail.

Example 8

Main group *A61K36/00 Medicinal preparations including traditional herbal medicines* was newly introduced in the eighth edition of the IPC. This new main group has a number of sub-groups, and some of these, such as *A61K36/02* which covers medicinal preparations containing *algae*, are broader, i.e. more general, than other more specific subgroups such as *A61K36/03* which covers medicinal preparations containing *brown algae*.

The screenshot shows the IPC Classification Scheme interface. The main content area displays the following classification levels:

- + A61K 33/00 Medicinal preparations containing inorganic active ingredients [2006.01]
- + A61K 35/00 Medicinal preparations containing materials or reaction products thereof with undetermined constitution [2006.01]
- - A61K 36/00 Medicinal preparations of undetermined constitution containing material from algae, lichens, fungi or plants, or derivatives thereof, e.g. traditional herbal medicines [2006.01]
 - Note(s)[2006.01]
 1. In this group, common names of plants, where given, are presented in brackets following their corresponding Latin names.
 2. In this group, it is desirable to add the indexing codes A61K 125/00-A61K 135/00.
 - - A61K 36/02 • Algae [2006.01]
 - A61K 36/03 •• Phaeophycota or phaeophyta (brown algae), e.g. Fucus [2006.01]
 - A61K 36/04 •• Rhodophycota or rhodophyta (red algae), e.g. Porphyra [2006.01]
 - A61K 36/05 •• Chlorophycota or chlorophyta (green algae), e.g. Chlorella [2006.01]
 - - A61K 36/06 • Fungi, e.g. yeasts [2006.01]
 - - A61K 36/062 •• Ascomycota [2006.01]
 - A61K 36/064 ••• Saccharomycetales, e.g. baker's yeast [2006.01]
 - - A61K 36/066 ••• Clavicipitaceae [2006.01]
 - A61K 36/068 •••• Cordyceps [2006.01]
 - - A61K 36/07 •• Basidiomycota, e.g. Cryptococcus [2006.01]
 - A61K 36/074 ••• Ganoderma [2006.01]
 - A61K 36/076 ••• Poria [2006.01]
 - A61K 36/09 • Lichens [2006.01]
 - A61K 36/10 • Bryophyta (mosses) [2006.01]
 - - A61K 36/11 • Pteridophyta or Filicophyta (ferns) [2006.01]
 - - A61K 36/12 •• Filicopsida or Pteridopsida [2006.01]
 - A61K 36/126 ••• Drynaria [2006.01]
 - A61K 36/13 • Coniferophyta (gymnosperms) [2006.01]
 - A61K 36/14 •• Cupressaceae (Cypress family), e.g. Juniper or cypress [2006.01]
 - A61K 36/15 •• Pinaceae (Pine family), e.g. pine or cedar [2006.01]

3.10.3 Finding the appropriate IPC symbols

Before making a search, it is essential to establish clearly the technical subject of the search and to identify technical terms relating to this subject. To use the IPC, it is necessary to locate the appropriate IPC symbols (sometimes called codes).

For this purpose, a systematic approach should be adopted:

1. identify the relevant section,
2. identify the class and subclass
3. identify the main group or subgroup

It is important to remember that the title of each subgroup must be read as being restricted by the titles of the higher level subgroups, the main group and the subclass. Bearing this in mind, it is necessary to select a subgroup with the largest number of dots, which still embraces all the essential characteristics of the technical subject to be searched.

In some instances – particularly when search IPC symbols with keywords – it may be sufficient just to use the IPC at subclass level. For instance, searching the word ‘beams’ will find beams used for various purposes – notably in building and in optics. Searching ‘beam’ and ‘IPC G02B’ will restrict the search to optical beams.

Choose from a combination of the following tools that will help you get started if you are unfamiliar with patent classification schemes:

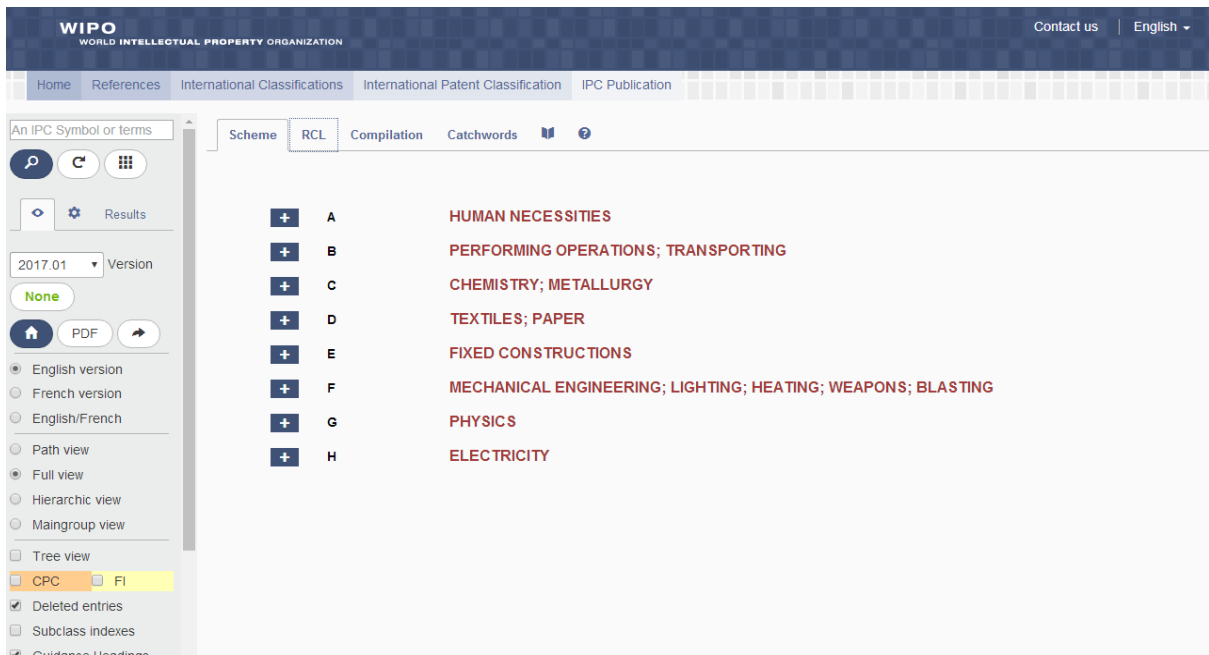
- (a) Check classifications on patent documents with similar technologies. You can search for those similar documents first with keywords and note the symbols on the documents most closely matched to what you are looking for.
- (b) Select from the various tools available to search the IPC: ‘*Terms*’, ‘*Cross-references*’, ‘*Stats*’ or ‘*Terms*’

In more detail

(a) A method, which you already know from Search Activity 2.7.1 in Module 2 is to do a preliminary keyword search to find patent documents with similar inventions to yours, note their IPC symbols, and then check their meaning at

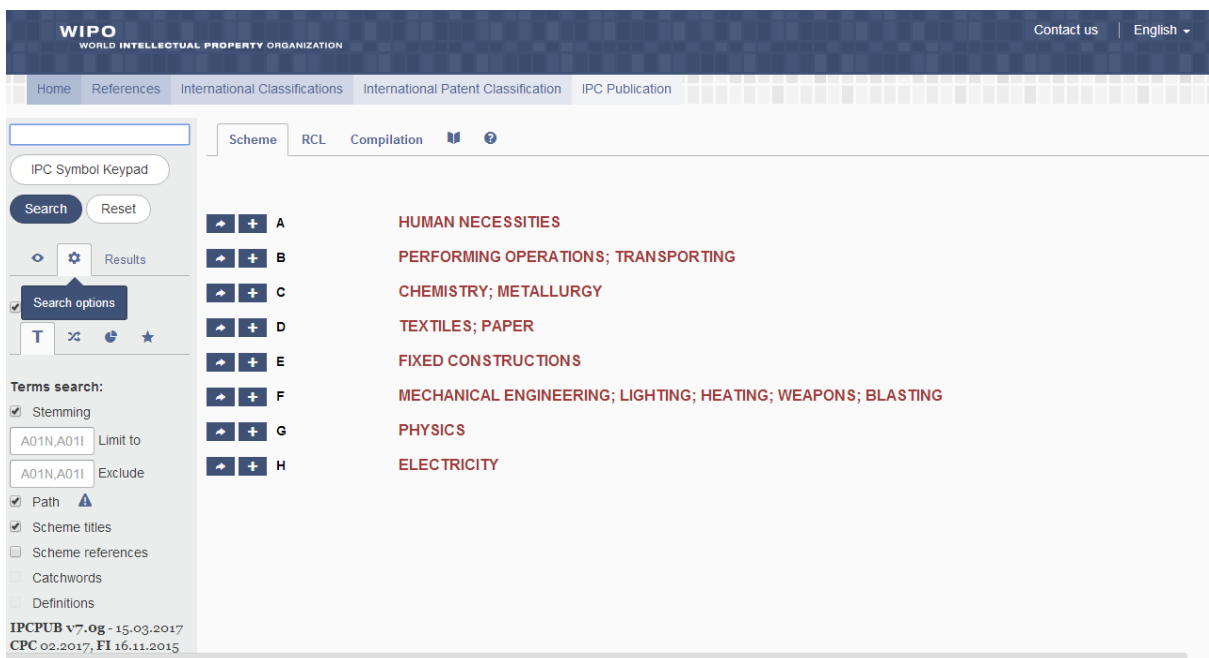
<http://www.wipo.int/ipcpub/#refresh=page>

(b) To use the IPC tools, go to <http://www.wipo.int/ipcpub/#refresh=page>



You can select 'Catchwords' from the list along the top, which will give you access to a dictionary of technical terms and their corresponding IPC symbols.

Alternatively, click on the symbol which gives 'Search options':



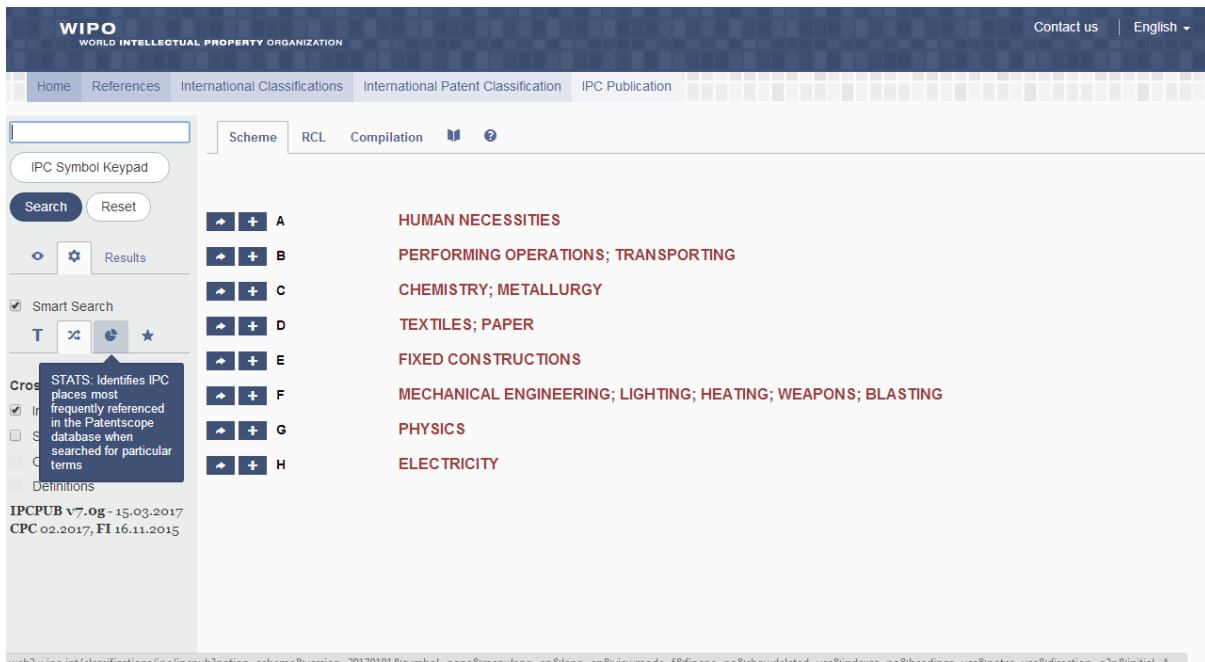
Then you can click on the appropriate symbol to select 'Terms':

The screenshot shows the WIPO IPC Symbol Keypad interface. The left sidebar contains a search box, 'Search' and 'Reset' buttons, and a 'Results' section. Under 'Smart Search', the 'Terms' option is selected, with a tooltip that reads: 'Terms: Search for terms(s) in IPC Scheme, Definitions and/or Catchwords'. Below this, there are checkboxes for 'Include subgroups', 'Scheme', 'Catchwords', and 'Definitions'. At the bottom of the sidebar, it lists 'IPC PUB v7.0g - 15.03.2017' and 'CPC 02.2017, FI 16.11.2015'. The main content area displays a list of IPC classes from A to H, each with a plus sign icon and a corresponding term: A HUMAN NECESSITIES, B PERFORMING OPERATIONS; TRANSPORTING, C CHEMISTRY; METALLURGY, D TEXTILES; PAPER, E FIXED CONSTRUCTIONS, F MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING, G PHYSICS, and H ELECTRICITY.

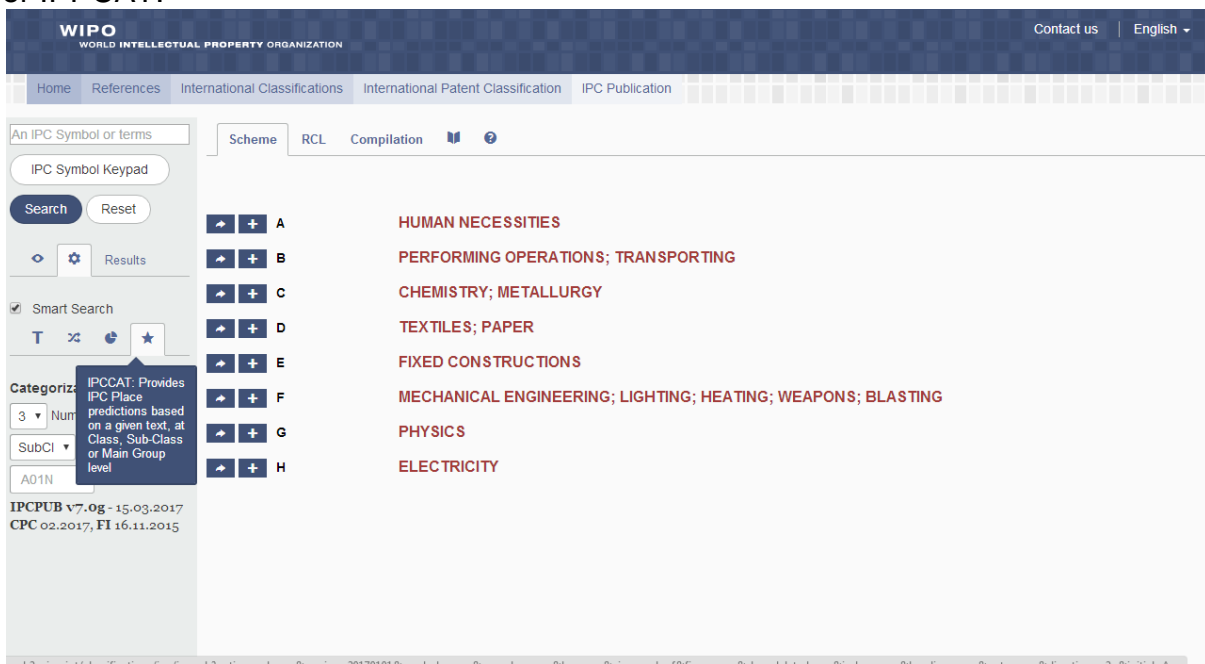
or 'Cross-references'

This screenshot is identical to the previous one, but with the 'Cross-references' option selected in the 'Smart Search' section. The tooltip now reads: 'Cross-references: Search for reference(s) to IPC Symbol in IPC Scheme, Definitions and/or Catchwords'. The rest of the interface, including the list of IPC classes and their terms, remains the same.

or 'Stats'



or IPPCAT:



.. You can experiment with each of these options, inputting words and phrases in the box at the top labelled 'An IPC Symbol or terms' to see which IPC symbols the system suggests.

3.10.4 Search Activity – The honey medicament again

Look back at Module 2, Search Activity 2.7.1 where a search in Patentscope provided us with an analysis of patent documents in the field of the medicinal usage of honey. Find the IPC subclass that was the most common and do a patent search using these symbols.

In that exercise, many of the applications were classified in the IPC subclass A61K followed by A61P then A23L and others. You may now identify these IPC symbols and perform searches in some of the databases you know. For instance:

| Int.Class | Appl.No | Title | Applicant | PubDate | Inventor |
|----------------------------------|-------------------|--|---------------------------------------|---------------|---------------|
| 1. WO/2017/031657
A61K 36/484 | PCT/CN2015/087883 | MEDICINE COMPOSITION FOR TREATING PNEUMOCOINOSIS | JINAN ZHENGQI BIOTECHNOLOGY CO., LTD. | WO 02.03.2017 | YANG, Qian |
| 2. WO/2017/031658
A61K 36/888 | PCT/CN2015/087885 | ANTI-NEOPLASTIC MEDICINE COMPOSITION AND PREPARATION METHOD THEREFOR | JINAN ZHENGQI BIOTECHNOLOGY CO., LTD. | WO 02.03.2017 | YANG, Qian |
| 3. WO/2017/031683
A61K 36/899 | PCT/CN2015/087993 | TRADITIONAL CHINESE MEDICINE FOR TREATING HYPERTENSIVE HEART DISEASE AND PREPARATION METHOD THEREFOR | JINAN ZHENGQI BIOTECHNOLOGY CO., LTD. | WO 02.03.2017 | FU, Shuangyan |

It is not the aim of this course to make you an IPC expert overnight, but to introduce you to the system. Then with practice, classification systems such as the IPC will become more and more useful to you.

3.10.5 Search Activity – Electric fencing

Using various approaches, find suitable classification(s) for *electric fencing*

Answer Search Activity

1. Find the IPC Catchword Index online and type some keywords (in this case *electric* then *fence*) in the left entry box. In this case, the keyword *electric* provided fewer clear options than the keyword *fence* which points us towards A01K3/00. Looking this up in the IPC shows that this symbol covers, amongst other things ‘*Electrified wire fencing*’ – clearly the right place.

The screenshot shows the WIPO IPC Catchword Index search results for the keyword 'FENCE'. The search results are organized into several categories:

- FENCES, FENCING**: doors or gates for FENCES E06B 11/02; electrified wire FENCES A01K 3/00 (enclosures) E04H 17/00; FENCES for children A47D 13/06; safety FENCES for keeping vehicles on the road E01F 15/00; snow FENCES E01F 7/02
- FENCING**: FENCING as a sport A63B 69/02, A63B 71/00; foils for FENCING F41B; training apparatus for FENCING A63B 69/02
- FENDER(S)**: FENDER(S) for ships in harbours E02B 3/26; FENDER(S) on water-borne vessels B63B 59/02; FENDER(S) piles E02B 3/26
- FERMENTATION**

2. Do a search on a patent database such as Patentscope for the phrase “*electric fence*”

The screenshot shows the WIPO Patentscope search results for the phrase 'electric fence'. The search results are displayed in a table format, showing the number of patents for each country, IPC class, inventor, applicant, and publication date.

| Countries | IPC | Inventor | Applicant | Pub Date |
|------------------------|----------|-----------------------|----------------------------------|----------|
| Name | No | Name | No | Date |
| United States | H05C 334 | SUEMATSU HIROSHI 19 | GALLAGHER GROUP LIMITED 21 | 2007 16 |
| United Kingdom | A01K 317 | HAMM VALERY 10 | SUEMATSU DENSHI SEISAKUSHO:KK 19 | 2008 34 |
| PCT | H01B 217 | USAMI JIRO 9 | HORIZONT GERAETEWERK 13 | 2009 53 |
| China | E04H 111 | TSUCHIYAMA YASUHIKO 8 | GALLAGHER ELECTRONICS LTD 12 | 2010 38 |
| European Patent Office | A01M 102 | HURLY LESLIE SEAN 7 | 株式会社未松電子製作所 11 | 2011 37 |
| Canada | G08B 82 | WILSON ROBERT M 7 | HUGH JOHN MACNAMARA 8 | 2012 42 |
| Japan | G01R 46 | 未松弘 7 | Tru-Test Limited 8 | 2013 25 |
| Germany | H03K 37 | Berg Jon A. 6 | WOLSELEY ENGINEERING LTD 8 | 2014 28 |
| South Africa | H02J 29 | ERIKSSON, Lars-Arne 6 | AKO AGRARTECH GMBH & CO KG 7 | 2015 23 |
| Republic of Korea | H02M 20 | | | 2016 17 |

The most common IPC symbols are H05C and A01K. Looking up H01C in the IPC we find that that this symbol covers *resistors* which is not what we’re looking for.

Next in line is A01K which we can look at in more detail to find that A01K3/00 is the best fit.

Searching A01K3/00 in combination with suitable keyword(s) looks to be the best way forward.

Further work - Repeat the above exercise to find suitable classification(s) for *smoke alarms*.

3.11 The Cooperative Patent Classification (CPC)

3.11.1 Introduction

Since October 2010, the EPO and the USPTO have been working together to harmonize their existing classification systems (ECLA and USPC, respectively) and move towards a common system called the *Cooperative Patent Classification (CPC)*. The CPC will incorporate the best practices of ECLA and USPC, lead to more efficient prior art searches and reduce unnecessary duplication of work. Adoption of a common classification system saves resources, as the responsibility for maintaining the classification system is shared. Both the EPO and the USPTO will continue to classify under the IPC as well as the CPC.

The CPC is based on the European classification system ECLA, which itself is based on the International Patent Classification (IPC) The CPC includes some 250,000 symbols, making it the most refined scheme available for classifying inventions. The CPC also includes an additional "Y" section which is related to specific technologies of particular public interest, such as renewable energy and smart grids. The CPC is currently available in English only.

The CPC website can be found at:


<http://www.cooperativepatentclassification.org/index.html>

The system first came into force on 1 January 2013; and is frequently updated – for updating details see

<http://www.cooperativepatentclassification.org/cpcSchemeAndDefinitions.html>

The CPC system itself can be found at

https://worldwide.espacenet.com/classification?locale=en_EP:



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Espacenet

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Search Result list My patents list (0) Query history Settings Help

Smart search

Advanced search

Classification search

Cooperative Patent Classification

Search for

View section **Index** | [A](#) | [B](#) | [C](#) | [D](#) | [E](#) | [F](#) | [G](#) | [H](#) | [Y](#)

⏪ → ⏩ ⏴ ⏵ ⏶ ⏷ ⏸ ⏹ ⏺ ⏻ ⏼ ⏽ ⏾ ⏿ ⏿

| Symbol | Classification and description | |
|----------------------------|---|---------|
| <input type="checkbox"/> A | HUMAN NECESSITIES | [S] |
| <input type="checkbox"/> B | PERFORMING OPERATIONS; TRANSPORTING | [S] [i] |
| <input type="checkbox"/> C | CHEMISTRY; METALLURGY | [S] [i] |
| <input type="checkbox"/> D | TEXTILES; PAPER | [S] |
| <input type="checkbox"/> E | FIXED CONSTRUCTIONS | [S] |
| <input type="checkbox"/> F | MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING ENGINES OR PUMPS | [S] [i] |
| <input type="checkbox"/> G | PHYSICS | [S] [i] |
| <input type="checkbox"/> H | ELECTRICITY | [S] [i] |
| <input type="checkbox"/> Y | GENERAL TAGGING OF NEW TECHNOLOGICAL DEVELOPMENTS; GENERAL TAGGING OF CROSS-SECTIONAL TECHNOLOGIES SPANNING OVER SEVERAL SECTIONS OF THE IPC; TECHNICAL SUBJECTS COVERED BY FORMER USPC CROSS-REFERENCE ART COLLECTIONS [XRACS] AND DIGESTS | [S] [i] |

Quick help

- [What is the Cooperative Patent Classification system?](#)
- [How do I enter classification symbols?](#)
- [What do the different buttons mean?](#)
- [Can I retrieve a classification using keywords?](#)
- [Can I start a new search using the classifications listed?](#)
- [Where can I view the description of a particular CPC class?](#)
- [What is the meaning of the stars in front of the classifications found?](#)
- [What does the text in brackets mean?](#)

Selected classifications

nothing selected

CPC symbols keep the same digits after the "/" as their parent IPC symbol. The symbols consist of only numeric characters after the forward slash. If a group is specific to the CPC (and thus does not exist in the IPC), additional digits are appended. There can be a maximum of six digits after the "/" e.g. see E04H2017/006 below:

Smart search

Advanced search

Classification search

Quick help

- [What is the Cooperative Patent Classification system?](#)
- [How do I enter classification symbols?](#)
- [What do the different buttons mean?](#)
- [Can I retrieve a classification using keywords?](#)
- [Can I start a new search using the classifications listed?](#)
- [Where can I view the description of a particular CPC class?](#)
- [What is the meaning of the stars in front of the classifications found?](#)
- [What does the text in brackets mean?](#)

Selected classifications

nothing selected

Find patents

Copy to search form

Cooperative Patent Classification

Search for View section | [Index](#) | [A](#) | [B](#) | [C](#) | [D](#) | [E](#) | [F](#) | [G](#) | [H](#) | [Y](#)

← → ↶ ↷ ⏪ ⏩ ⏴ ⏵ ⏶ ⏷ ⏸ ⏹ ⏺ ⏻ ⏼ ⏽ ⏾ ⏿

« E04H15/00 E05 »

| Symbol | Classification and description |
|--|--|
| ★★★★★ <input type="checkbox"/> A01K 3/00 | Pasturing equipment, e.g. tethering devices; [Guiding corridors; Corrals, e.g. portable, collapsible]; Grids for preventing cattle from straying; Electrified wire fencing (construction of fencing in general E04H 17/00 ; electric circuits for fences H05C) |
| ★★★★★ <input type="checkbox"/> A01M 29/00 | Scaring or repelling devices, e.g. bird-scaring apparatus |
| ★★★★★ <input type="checkbox"/> H05C 1/00 | Circuits or apparatus for generating electric shock effects |
| ★★★★★ <input type="checkbox"/> E04H 17/00 | Fencing, e.g. fences, enclosures, corrals (features peculiar to electrified fences A01K 3/00 , H05C ; means for allowing passage through fences, barriers, or the like E06B 11/00) <ul style="list-style-type: none"> <input type="checkbox"/> E04H 17/003 • [Anti-climbing devices, e.g. fixed or rotary spikes] <input type="checkbox"/> E04H 2017/006 • [Caps for posts] <input type="checkbox"/> E04H 17/02 • Wire fencing (E04H 17/14 takes precedence) <input type="checkbox"/> E04H 17/04 • •using wire, barbed wire, wire mesh, toothed strips, or the like; Coupling means therefor (wire netting B21F 27/00; other metallic fabrics see the relevant classes; tumbuckles F16G 11/12) <input type="checkbox"/> E04H 17/06 • •Parts for wire fences <input type="checkbox"/> E04H 17/063 • •• [Fence liners; Vegetation prevention barriers] <input type="checkbox"/> E04H 17/066 • •• [Slats for chain link fences] <input type="checkbox"/> E04H 17/08 • •• Anchoring means therefor, e.g. specially-shaped parts entering the ground; Struts or the like (for towers or masts E04H 12/20; sockets for posts E04H 12/22) i <input type="checkbox"/> E04H 17/10 • •characterised by the way of connecting wire to posts; Droppers <input type="checkbox"/> E04H 17/12 • •• the wire being placed in slots, grooves, or the like <input type="checkbox"/> E04H 17/14 • •Fences constructed of rigid elements, e.g. with posts, with additional wire fillings d <input type="checkbox"/> E04H 17/1404 • • [using building blocks] <input type="checkbox"/> E04H 17/1408 • • [using woven slats] |

To search using the CPC:

- Access the *Advanced search* page in Espacenet, enter a symbol, e.g. H01L21/285, in the search field and click on "Search". It is also possible to search at different levels in the hierarchy, e.g. H01, H01L, etc.
- If you want to search all entries below a certain group, you can use the low operator, e.g. if you enter H01L21/027/low in the "CPC" search field, you will be searching all the lower (or hierarchically dependent entries) i.e. H01L21/033, AND??? etc. Whereas if you enter H01L21/027 or H01L21/exact, you will get far fewer hits, confined to that particular subgroup

To view the definition of CPC symbols, go to the Classification search mask at:

https://worldwide.espacenet.com/classification?locale=en_EP:

where you can navigate to any classification. Curly brackets {...} mark either the title of a CPC group which does not exist in the IPC or CPC-specific text added to the original title of an IPC group. Click on the green CPC button in the Classification search to display CPC-related text in green.

3.11.2 Search Activity - Finding CPC Symbols

- a) Find the CPC symbol Y02C 20/10 and note the description of the symbol.
- b) Find a patent application published in 2008, with CPC code Y02C 20/10, and "Zafar" as one of the inventors.

c) Was a patent corresponding to the identified patent application granted? If yes, then give details on number, issue date and ownership.

3.11.3 Search Activity - Finding CPC Symbols for various technologies

Which CPC symbol would be the most relevant for an invention relating to:

- a) Energy generation through renewable energy sources
- b) Medicinal preparations containing peptides
- c) Automatic musical instruments
- d) Woven pile fabrics
- e) Data switching networks

3.12 Patent Families

In simple terms a *patent family* comprises all the patent applications or patents filed worldwide relating to the same invention and with a common priority date.

A typical applicant will firstly apply for a patent in his own country, this application being called the *priority document* and its date of filing the *priority date*, and then within 12 months of that priority date, file further applications in other countries where he wishes to market the invention, based on the priority document.

All these applications together constitute a patent family. (Note The first filing could alternatively be through one of the multinational routes eg a regional application through the EPO or an international PCT application through WIPO).

There are more complex patent families, for which see:

- the WIPO *Handbook on industrial property information and documentation* at: <http://www.wipo.int/export/sites/www/standards/en/pdf/08-01-01.pdf>
- Espacenet at <http://www.epo.org/searching-for-patents/helpful-resources/first-time-here/patent-families.html>

First time here?

Basic definitions

Patent classification

Patent families

About patent families

Definitions

Espacenet patent family

Extended patent family

Derwent WPI patent family

Asian patent information

Events, training and publications

Patent information centres

Raw data

Information on EPO data

Patent Translate

Can't find a product?

Patent families

A patent family is a set of either patent applications or publications taken in multiple countries to protect a single invention by a common inventor(s) and then patented in more than one country. A first application is made in one country – the priority – and is then extended to other offices.

> Definitions

An overview of the three main types of patent family based on an example

> Extended (INPADOC) patent family



This broader definition of a patent family takes domestic application numbers as additional connecting elements and includes documents having the same scope but lacking a common priority.

> Espacenet patent family

In Espacenet a patent family is defined as comprising all documents having exactly the same priority or combination of priorities.

> Thomson scientific WPI patent family

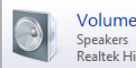
Patent Families in the Thomson Scientific World Patents Index (WPI) draw together patents covering the same invention. Their relationship is defined by the priority or application details claimed by each document.

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Support

Talk to EPO experts or get help from other users

> Visit the discussion forum



When one patent application results in several patents in many different countries, all of the patents and applications associated with the original patent application are collectively called the patent family. Each patent family member will have an independent legal status (or validity) in the country in which protection is sought. For example, a patent that is granted and in force in the United States may have a corresponding family member that has lapsed in Canada if the renewal fees were not paid there.

Patent families become particularly important:

- in patent infringement and pharmaceutical generics searching to determine if a product or process is free to make or import into a particular country or will become free for general use;
- to find the invention described in another language;
- to estimate the global importance of an invention (the more patent family members the more likelihood the invention is important); and
- to determine the global marketing strategy of a potential competitor or business partner regarding a particular product or process

Patent family searches are often performed in conjunction with legal status searches (see Module 2, Section 2.8). In trying to find a particular technology it is often important to know not only where patents have been applied for but also what the level of protection is (i.e. the legal status of each application).

Several databases can help in identifying patent families, and each deals with families differently, e.g. INPADOC provided by the EPO; EDOC – INPI provided by INPI, the French Patent & Trademark Office; World Patent Index (WPI) provided by Derwent and CAS - Chemical Abstracts Service. None of these databases provides complete patent family information, so it may be advisable to check more than one.

Some Internet sites where patent family information can be freely found include:

- Espacenet: <https://worldwide.espacenet.com/> (click on the button for selecting INPADOC patent family information)
- Orange book: <http://www.fda.gov/cder/ob/>
- Patentscope - <http://www.wipo.int/pctdb/en/> see the national phase data tabs in relation to WO publication numbers
- The Lens: <http://www.lens.org/lens/>

The above is not an exhaustive list, and may change over time.

3.12.1 Search Activity – Finding patent family members

Imagine you went on a canal boat trip recently. As you were cleaning the boat at the end of the journey, you wondered how to clean the part of the boat submerged under the water. Being unable to sleep one night, you perform a patent search and find an interesting document published as European Patent EP1343682.

See if you can find in which other countries or regions the patent has been applied for.

3.13 Self-Assessment Questions (SAQs)

SAQ3.1: Which of the following do you agree with?

1. There are online patent databases hosted by many national and regional Patent Offices and Intellectual Property Offices around the world which are completely free to use
2. Each online patent database contains only documents published by the country or regional organization that hosts the database
3. There are free online databases offering searching in the English language hosted in, for instance, China, Japan and Korea
4. There are major free patent online databases hosted by WIPO, the EPO and the USPTO; all containing pretty much the same collections of documents
5. While one database may contain the full text of a collection of documents another might just include the abstracts
6. As well as free databases, there are commercial databases which offer enhanced or added value but charge fees
7. Eligible Patent Offices and academic and research institutions in developing countries can receive free or low-cost access to commercial databases

SAQ3.2: *Which of the following do you agree with?*

1. Non-Patent Literature (NPL) comprises only scientific papers and journals published by approved authorities
2. NPL comprises all scientific papers and journals, but does not include 'informal' publications such as advertisements
3. NPL includes any published material which is not in the form of patents
4. There are both free and commercial NPL online databases
5. Eligible Patent Offices and academic and research institutions in developing countries can receive free or low-cost access to scientific publications

SAQ3.3: *What does truncation or stemming enable you to do?*

1. to search a group of words by treating the group as a single search term
2. to find synonyms for a search term
3. to search using operators such as AND, OR, NOT
4. to restrict the search to titles, or to abstracts or to names etc
5. to shorten a search term in order to save time typing
6. to trim or shorten a search term to include alternatives that have the same groups of letters
7. to restrict the search to the most relevant documents
8. to search for terms that appear near or next to one another in a document

SAQ3.4: *What does Boolean logic enable you to do?*

1. to search a group of words by treating the group as a single search term
2. to find synonyms for a search term
3. to search using operators such as AND, OR, NOT
4. to restrict the search to titles, or to abstracts or to names etc
5. to shorten a search term in order to save time typing
6. to trim or shorten a search term to include alternatives that have the same groups of letters
7. to search for terms that appear near or next to one another in a document

SAQ3.5: *What does phrase searching enable you to do?*

1. to search a group of words by treating the group as a single search term
2. to find synonyms for a search term
3. to search using operators such as AND, OR, NOT
4. to restrict the search to titles, or to abstracts or to names etc
5. to shorten a search term in order to save time typing
6. to trim or shorten a search term to include alternatives that have the same groups of letters

7. to search for terms that appear near or next to one another in a document

SAQ3.6: *What does proximity searching enable you to do?*

1. to search a group of words by treating the group as a single search term
2. to find synonyms for a search term
3. to search using operators such as AND, OR, NOT
4. to restrict the search to titles, or to abstracts or to names etc
5. to shorten a search term in order to save time typing
6. to trim or shorten a search term to include alternatives that have the same groups of letters
7. to search for terms that appear near or next to one another in a document

SAQ3.7: *What does field searching enable you to do?*

1. to search a group of words by treating the group as a single search term
2. to find synonyms for a search term
3. to search using operators such as AND, OR, NOT
4. to restrict the search to titles, or to abstracts or to names etc
5. to shorten a search term in order to save time typing
6. to trim or shorten a search term to include alternatives that have the same groups of letters
7. to search for terms that appear near or next to one another in a document

SAQ3.8: *Which of the following do you agree with in respect of the International Patent Classification (IPC)?*

1. The IPC is a single patent classification system used by more than 100 countries
2. The IPC is published only in English
3. IPC symbols can be used in online searches in PATENTSCOPE
4. The IPC has some 70,000 classification symbols
5. IPC symbols can be used in online searches in the USPTO database
6. IPC symbols can be used in online searches in ESPACENET
7. The IPC is a single patent classification system developed and administered by the EPO and the USPTO
8. The IPC was founded in 1971
9. The IPC has some 250,000 classification symbols
10. The IPC was founded in 2010
11. The IPC system is administered by WIPO
12. The IPC is published in English and French plus Chinese, Czech, Dutch, Estonian, German, Japanese, Korean, Polish, Portuguese (Brazil), Serbian, Slovak, and Spanish

13. The IPC has a special section for technologies of public interest, such as renewable energy and smart grids
14. To find the appropriate IPC symbol for a particular invention, you could search for that invention and investigate which IPC symbols have been applied to the documents you find; or you could use a tool for searching the classification itself

SAQ3.9: *Which of the following do you agree with in respect of the Cooperative Patent Classification (CPC)?*

1. The CPC is a single patent classification system used by more than 100 countries
2. The CPC is published only in English
3. CPC symbols can be used in online searches in PATENTSCOPE
4. The CPC has some 70,000 classification symbols
5. CPC symbols can be used in online searches in the USPTO database
6. CPC symbols can be used in online searches in ESPACENET
7. The CPC is a single patent classification system developed and administered by the EPO and the USPTO
8. The CPC was founded in 1971
9. The CPC has some 250,000 classification symbols
10. The CPC was founded in 2010
11. The CPC system is administered by WIPO
12. The CPC is published in English and French plus Chinese, Czech, Dutch, Estonian, German, Japanese, Korean, Polish, Portuguese (Brazil), Serbian, Slovak, and Spanish
13. The CPC has a special section for technologies of public interest, such as renewable energy and smart grids
14. To find the appropriate CPC symbol for a particular invention, you could search for that invention and investigate any CPC symbols that have been applied to the documents you find; or you could use a tool for searching the classification itself

SAQ3.10: *Which of the following best indicates that a set of patent documents is a patent family?*

1. they necessarily claim similar technology
2. they were filed in the same country or region
3. they were necessarily filed by the same applicant
4. they have the same priority date

SAQ3.11: *When can patent families be particularly useful?*

1. when looking for a version of a patent document in another language

2. as an indicator of the global importance of an invention
3. as an indicator of the global marketing strategy of a potential competitor or business partner
4. to find out where an invention is protected, and where it is not protected and therefore free to make or import

[End of Module III]