RESEARCH METHODOLOGY & INTELLECTUAL PROPERTY RIGHTS (IPR)

Course Code: BRMK557

MODULE -3

Introduction to Intellectual Property: Patents & Process of Patenting

A Simplified Notes for the 5th Semester As per VTU Syllabus - 2022 Scheme

Dr. SURESHA V

Professor, Department of E&CE

K.V.G. College of Engineering, Sullia, D.K-574 327

Module 3

Introduction To Intellectual Property: Patents & Process of Patenting.

Learning Module Outcomes

After reading this Module, the student will be able to:

- To gain a solid understanding of the concept of intellectual property including patents, and how they contribute to protecting innovations.
- To Learn the Knowledge of Patent Basics & an Overview of the Patent System.
- To learn the Patent Application Process.

Chapter 1: Introduction To Intellectual Property (Textbook 2: Page 1-16)

- Role of IP in the Economic and Cultural Development of the Society
- IP Governance
- IP as a Global Indicator of Innovation
- Origin of IP and History of IP in India.
- Major Amendments in IP Laws and Acts in India.

Chapter 2: Categories of Intellectual Property (Textbook 2: Page 17 - 42)

- Patents
- Process of Patenting

Text Book: "*Intellectual Property: A Primer for Academia"* by Prof. Rupinder Tewari Ms. Mamta Bhardwa, Publication Bureau Panjab University Chandigarh.

Chapter 1: Introduction To Intellectual Property

1.1 Intellectual Property (IP): There are many ways to describe IP as follows

- Intellectual Property (IP) is a special category of property created by human intellect (mind) in arts, literature, science, trade, etc.
- IP is something produced using the human mind that has commercial value.
- It also refers to creations of the mind, such as inventions; literary and artistic works; designs; and symbols, names and images used in commerce.
- Intellectual Property (IP) is a property that arises from the human intellect. It is a product of human creation.
- IP is a novel creation of the mind, it is intangible (i.e. invisible and indivisible) in nature and differs from tangible property, such as land, house, car etc.

1.2 Intellectual Property Rights (IPR): It can be defined in multiple ways as follows

- The term "Intellectual Property Right" refers to the legal rights granted to protect the creations of the mind or intellect. The creations have both moral and commercial value.
- Intellectual Property Rights (IPR) refer to legal rights granted to individuals or entities for their creations or inventions, which are typically intangible.
- Intellectual Property Rights (IPR) are the privileges granted to the creator /inventor (of IP) in conformance with the laws.

- **Importance of IPR**
  - The inventor is conferred with the special rights to use, sell, distribute, offer for sale and restrict others from using the invention without his prior permission.
  - IPR aims to exclude third parties from exploiting the protected subject matter for a certain period (normally 20 years), without explicit authorisation from the right holders.
  - IPR owners can use or disclose their creations without fear of loss of control over their usage during the dissemination of their creation/invention.

- **Types of Intellectual Property (IP):** IP is often divided into TWO main branches
  1. **Copyrights and Related Rights:** These rights refer to the creative expressions in the fields of literature and art, such as books, publications, architecture, music wood /stone carvings, pictures, portraits, sculptures, films and computer-based software/databases.
  2. **Industrial Property Rights:** The Industrial Property Rights refer to the Patents, Trademarks, Trade Services, Industrial Designs and Geographical Indications.

1.3 Role of IP in the Economic and Cultural Development of the Society:

- The economic and social development of a society of any nation is largely dependent on creativity.
- The protection provided by the IPR to the creators/innovators is an act of reward for encouraging them to create more and motivates others to create new and novel things.
- Property (IP) plays a crucial role in the cultural development of society by providing a framework for protecting and rewarding cultural expressions.

- If IPRs are followed too strictly, it can harm society's progress. For example, the implementation of the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement has affected the farming community adversely.
- The farmers are unable to store seeds for the next crop as multinational companies regulate the seed prices, which is usually unaffordable for a vast majority of farmers. To solve the negative impact of IPR, certain laws, exceptions & limitations associated with IPR have been enacted to maintain a balance between the interests of the creators/inventors and the community.
- The use of copyrighted material for education and religious ceremonies is exempted from the operation of the rights granted in the Copyright Act. Similarly, a patent can be revoked in favour of compulsory licensing by the government during an emergency or a natural calamity.
- If an invention is not in the interest of society, it is not granted IP rights. For example, the cloning of human embryos and the creation of super microbial pathogens are banned from IP protection.
- India has abundant biodiversity and genetic resources, known as Traditional Knowledge. Initiatives like "Make in India" and "Atmanirbhar Bharat" support local brands, and easy processes for patents and trademarks are available to benefit from these resources.

1.4 IP Governance: IP is an integral component of human society, every nation has dedicated agencies for laying out the guidelines, implementation and enforcement of IP-related matters.

- **In India:**
  1. ***Department for Promotion of Industry & Internal Trade (DPIIT):*** It is a department under the Ministry of Commerce and Industry in India. Its role in the formulation and implementation of industrial policy and promotion measures to foster overall economic growth in the country. Some of the primary functions and responsibilities of DPIIT include
     a. *Intellectual Property Rights (IPR) Promotion.*
     b. *Formulation and Implementation of Industrial Policy.*
     c. *Promotion of Make in India Initiative.*
     d. *Start-up Ecosystem Promotion.*
     e. *Monitoring and Implementation of Industrial Schemes, etc.*

2. ***Technology Information Forecasting and Assessment Council (TIFAC):*** It is an autonomous organization under the Department of Science and Technology (DST) in India. It assesses the state-of-the-art technology and sets directions for future technological development in India in important socio-economic sectors.
3. ***National Research Development Corporation (NRDC):*** It is a government-owned enterprise in India established with the primary objective of promoting, developing, and commercializing technologies and IP that come out from various research & development institutions, universities and industrial establishments.
4. ***Cell for IPR Promotion and Management (CIPAM):*** It assists in simplifying and streamlining IP processes, apart from undertaking steps for accelerating IPR awareness, commercialization and enforcement.

- **At International level:**
  - ***World Intellectual Property Organization (WIPO):*** The United Nations (UN) has established this organization to govern international filing and registration of IP through various Conventions and Treaties like the Paris Conventions, Patent Cooperation Treaty (PCT), Rome Convention, Berne Convention, etc.

1.5 IP as a Global Indicator of Innovation: IP, especially patents, is considered one of the important parameters in assessing the innovation index of a nation. For example, the 2020 report of Scopus ranked India in 4th position in Research Publications and 50th position in Intellectual Property Rights. The teaching and scientific communities need to be educated on the importance of IP and infrastructure needs to be created in institutes of higher learning to improve global ranking.

1.6 History of IP in India: *** The main branches of IP are

1. Patents
2. Copyrights and Related Rights
3. Trademarks
4. Geographical Indications
5. Trade Secrets
6. Semiconductor Integrated Circuits and Layout Designs
7. Plant Varieties
8. Traditional Knowledge
9. Industrial Designs
10. Biodiversity Conservation

1. Patents

- The first legislation in India relating to patents was the Act VI of 1856. The objective of this legislation was to encourage the invention of new and useful manufactures and to induce inventors to disclose the secrets of their inventions.
- In India, the first patent was awarded in 1856 to a civil engineer, George Alfred DePenning from Calcutta, for his invention, '*An Efficient Punkah Pulling Machine'.*
- The Patterns and Designs Protection Act of 1872 includes the provision of protection for Novelty' in the invention.
- Introduce the Indian Patents and Designs Act, 1911' (Act II of 1911). As per this Act, the governance of patents was placed under the management of the Controller of Patents. These amendments dealt with;
  - *Use of invention by the government.*
  - *Patent of Addition.*
  - *Enhancing the term of the patent from 14 years to 16 years.*
  - *Filing of Provisional Application' and submission of Complete Application within 9 months from applying.*
- A committee chaired by Justice Bakshi Tek Chand was formed in 1949 to review the benefits of the patent system. The committee submitted the following recommendations.
  - *Misuse of patent rights needs to be prevented.*
  - *The food, medicine, surgical and curative devices should be made available to the masses at the cheapest rate by providing reasonable compensation to the patent owner.*
- In 1952, Act LXX was made to provide compulsory licencing of patents related to food, drugs and chemicals killing insects and microbes.
- In 1995, India signed the TRIPS Agreement and got a transition period of 10 years to make domestic laws compatible with the international treaty.
- In 1999, The Patents Act was introduced providing for the filing of applications for product Patents' in the areas of drugs, pharmaceuticals and Agrochemicals.
- In 1970 patent Act was made This Act introduced new Patent Rules, in 2003, thus replacing the earlier patent rules, in 1972. The major amendments were:
  - *The protection term of 20 years for all inventions from the date of filing.*

- *Scope of non-patentable inventions including Traditional Knowledge expanded.*
- *Disclosure of source and geographical origin of biological material made compulsory.*
- *Provisions concerning convention countries simplified.*
- *Establishment of Appellate Board.*
- *Compulsory license provisions strengthened and simplification of procedures.*
- *Harmonization with Patent Cooperation Treaty (PCT) provisions.*

o With the rapidly changing scenario of IPR at a global level, In 2005 a new amendment. The highlights of the Patents (Amendments) Act 2005 were:

- *Product patents for inventions in all fields of technology.*
- *New forms of known substances excluded to prevent evergreening of the patent.*
- *Rationalization of the opposition procedure.*
- *Introduction of pre-grant opposition by representation.*
- *Introduction of post-grant opposition.*
- *Compulsory license for export purposes.*
- *Compulsory license for manufacture.*
- *Extension of grace period from 6 months to 12 months for filing a patent, if published in government exhibition.*

2. Copyrights and Related Rights: The evolution of copyright law in India occurred in THREE phases. First, two phases were enacted during the British Raj. In the

- ***First phase***: The concept of copyrights was introduced in 1847 during the East India Company's regime. The term of copyrights was for the lifetime of the author plus seven years after death. The registration of copyright was mandatory for the enforcement of rights under the Act. The government can allow publication of a book through a compulsory license if the owner of the copyright, after the death of the author, denies permission.
- ***Second phase***: The Indian legislature, enacted the Imperial Copyright Act of the UK. An Act for criminal sanction for an infringement was introduced.
- ***Third phase:*** During postindependence, the Copyright Act of 1957 was enacted, superseding the Indian Copyright Act, of 1914, to suit the provisions of the Berne Convention (1886).
- India is an active member of nearly all significant international conventions/Treaties related to Copyright Law

3. Trademarks: The Trade Marks Act, 1940 was India's first law related to Trademarks (TM), followed by the inclusion of TM provisions in the Indian Penal Code, Criminal Procedure Code, and the Sea Customs Act. The Trade Marks Act, of 1999 repealed the previous Act after almost four decades.

4. Geographical Indications: India, as a member of WTO, enacted the Geographical Indications of Goods (Registration and Protection) Act, of 1999. It came into force with effect from 15th September 2003. Geographical Indicators have been defined under Article 22 (1) of the WTO Agreement on TRIPS.

5. Trade Secrets: Indian courts have upheld Trade Secrets protection under various statutes, including contract law, Copyright law, the principles of equity and the common law action of breach of confidence.

6. Semiconductor Integrated Circuits and Layout Designs: The protection of Semiconductor Integrated Circuits and Layout Designs (SICLD), India passed an Act called the SICLD Act, 2000. This Act is TRIPS compliant and fulfils the conditions of the TRIPS &WTO agreement concerning the protection of SICLD.

7. Plant Varieties: The Indian Patents Act, of 1970 excludes —plants and animals in whole or any part thereof other than microorganisms‖ from patentability. India adopted the PPV&FR Act, 2001 as a sui generis regime protecting not only new plant varieties but also farmers' rights.

8. Traditional Knowledge(TK): Traditional Knowledge (TK) is the ancient and indigenous knowledge held by communities and groups of people. It includes the use of plants for medical treatments, traditional dance, hunting techniques, and craft skills. The Government of India has created a digital library called Traditional Knowledge Digital Library (TKDL) that houses 250,000 Indian medicine formulations.

9. Industrial Designs (ID): It refers to the creations of the human mind that need protection. The concept of ID was recognized in the 18th century, and for the first time, the Indian legislation enacted the 'Patterns and Designs Act' in 1872 to safeguard the rights of inventors over their designs and novel patterns. The Act was replaced by the British Patents and Designs Act in 1907 after several changes. Finally, in the year 2000, a dedicated Act for Industrial Designs was passed to provide comprehensive protection to inventors.

10. Biodiversity Conservation: Biodiversity is an inseparable part of human livelihood. In 1927 the Indian Forest Act' and later on the Wildlife Protection Act, 1972' was enacted to provide legal protection to biodiversity. The Acts and policies in force to protect the environment and biodiversity in India include

- *Mining and Mineral Development Regulation Act, 1957.*
- *Water (prevention and control of pollution) Act, 1974.*
- *Forest Conservation Act, 1980.*
- *Biological Diversity Act, 2002.*
- *Scheduled Tribes and Other Traditional Forest Dwellers Act, 2006.*
- *National Environment Policy, 2006.*
- *National Biodiversity Action Plan, 2009.*

1.6. Major Amendments in IP Laws and Acts in India: The table below summarises the history of Laws and Acts of intellectual property in India.

Sl. No	Year	Historical Proceedings
		Patents
1.	1856	The Act VI of 1856 on the protection of inventions is based on the British Patent Law of 1852.
2.	1859	– Rights renamed as _Exclusive Privileges'. – Time for the priority increased from 6 months to 12 months.
3.	1883	– The Patterns and Designs Protection Act and introduction of novelty in the invention. – A grace period of 6 months for the disclosure of the invention.
4.	1911	– Renamed The Indian Patent and Design Act' and brought under the management of Controller of Patents.
5.	1930	– Introduction of Patent of Addition & Government can use the invention if required. – The term of patent protection increased from 14 to 16 years.
6.	1945	– Filing of the provisional specification to secure the priority date. – Provision of submitting complete specifications within 9 months.
7.	1949	– A dedicated Committee was formed under the leadership of Justice Bakshi Tek Chand to review the patent system as per the national environment.
8.	1950	– A working statement needs to be submitted to the Patent Office. – Endorsement of the Patents with the words' License of Right' on the application made by the government so that the Controller could grant the license.
9.	1952	– Provision of Compulsory Licenses ' in the areas of food, medicine and insecticide germicide. – Process for producing substance or any invention relating to surgical or curative devices
10.	1965	– After incorporation of the recommendation submitted by the committee formed in 1949, a new bill was introduced in Lok Sabha but was not cleared
11.	1967	– Again submitted to Parliamentary Committee. – The 1911 Act remained applicable to Designs
12.	1970	– The Patent Act, of 1970 was passed by the Parliament Committee.

*** Complete table available at the following link

Source: http://www.ipindia.nic.in/history-of-indian-patent-system.htm

CHAPTER-2

CATEGORIES OF INTELLECTUAL PROPERTY

2.1. Introduction: To understand intellectual property (IP) in India, it has been categorized into *patents, copyrights, trademarks, trade secrets, industrial designs, geographical indications, and semiconductor integrated circuits layout designs.*

2.2. Patents:

- A patent is a legal right granted to an inventor, giving them exclusive ownership and control over the production and selling of their invention for a set period.
- A patent is a legal document that gives the holder exclusive rights to an invention, product, or process for a set period.
- Examples of patents include Thomas Edison's patent for the light bulb and Alexander Graham Bell's patent for the telephone.

2.1.1. Conditions for Obtaining Patent Protection:*** Following the criterion that must be fulfilled for a product or a process to qualify for the grant of a patent.

1. ***Novelty:*** The invention must be new and has not been disclosed or published anywhere in the world before the date of filing the patent application. In other words, the innovation is
   a. *Not in the knowledge of the public*
   b. *Not published anywhere through any means of publication and*
   c. *Not be claimed in any other specification by any other applicant*.
2. ***Inventive step***: The innovation is
   a. *A technical advancement over the existing knowledge.*
   b. *Possesses economic significance.*
   c. *A person skilled in the concerned subject.*
3. ***Capable of industrial application:*** For the benefit of society. The invention is capable of being made or used in any industry.

2.1.2. To Patent or Not to Patent an Invention

- Inventors must choose between exploiting their inventions for personal gain or making them public. Most choose the former. Few inventions are made public without any benefits. Anyone can use public inventions for free.
- If an inventor wants to earn money from their invention, they can choose to either "***Patent"*** *it* or keep it as a "***Trade Secret***."

- *The trade secret* option is better chosen if the inventor is confident that they can keep the invention a secret for a very long time (maybe 100 years or more) and there is almost no chance that anyone can reverse engineer the technology.
- *Patent* is a better option to prefer, if the invention has a short lifespan or can only be kept secret for a short period (a couple of years or so), or if the chances of someone reverse engineering the invention are high once it becomes public knowledge.

2.1.3. Rights Associated with Patents: Under patent law, the owner of an invention has exclusive rights to make, use, distribute, import and sell the invention. Others may not do any of these without the owner's consent. The owner may choose to allow others to use their invention by mutual agreement. The patent rights are negative as the owner is restricting others from using the patent in any manner without his prior permission. The patent holder may choose to sue the infringing party to stop the illegal use of the patent and also ask for compensation for the unauthorized use.

2.1.4. Enforcement of Patent Rights: Enforcement refers to the steps taken to ensure that laws, regulations, rules, standards, and social norms are followed. Patent rights are typically enforced through the judicial court system, which has the power to stop infringement. However, it is primarily the responsibility of the patent owner to monitor, identify, and take action against those who violate the patent.

2.1.5. Inventions Eligible for Patenting:

- Patents can be granted for any invention or technology, not just major scientific breakthroughs. It ranges from a paper clip to a nanotechnology chip
- Most patents are granted to inventions that demonstrate an improvement over existing inventions. For instance, a single molecule, such as penicillin and its derivatives, can receive multiple patents. These derivatives are created by making subtle changes to the penicillin's structure, resulting in new or improved properties. The new antibiotic molecules, referred to as second, third, or fourth-generation penicillins, can also be patented.
- In our daily lives, we use many patented items, such as toothbrushes, toothpaste, shoes, pens, eyeglasses, textiles, mobile phones, wristwatches, bicycles, scooters, cars, television, cold drinks, beverages and many more.

- It is common for products to contain multiple patented inventions. For example, a laptop computer requires hundreds of inventions to work together. Similarly, cars, mobile phones, and televisions consist of many patented components.

2.1.6. Non-Patentable Matters:***** In the Patent Act, there are some exclusions (products and processes) that cannot be patented, Here are some examples of non-patentable matters:

1. ***Invention contrary to public morality*** - a method for human cloning, a gambling method. diagnostic, therapeutic and surgical methods for the treatment of humans or animals.
2. ***Mere discovery***: In the context of patent law, mere discoveries are often considered ineligible for patent protection. Patents are typically granted for inventions that involve a degree of human ingenuity, creativity, or innovation beyond merely observing or discovering something that already exists. Example Finding a new micro-organism occurring freely in nature, laws of gravity.
3. ***Mere discovery of a new form of a known substance***: In many jurisdictions, the mere discovery of a new form of a known substance may not be considered eligible for patent protection. Example Use of aspirin for heart treatment. Aspirin was patented for reducing fever and mild pains.
4. ***Frivolous invention***: A frivolous (silly) invention refers to an idea, creation, or innovation that is perceived as trivial, impractical, or lacking in serious value or usefulness. For example, dough supplemented with herbs, merely changing the taste of the dough, 100 years calendar, bus timetable.
5. ***Arrangement or rearrangement***: For example an umbrella fitted with a fan, or a torch attached to a bucket.
6. ***Inventions falling within Section 20(1) of the Atomic Energy Act:*** Inventions relating to compounds of Uranium, Beryllium, Thorium, Radium, Graphite, Lithium and more as notified by the Central Government from time to time.
7. ***Literary, dramatic, musical, artistic work***: Books, sculptures, drawings, paintings, computer programs, mathematical calculations, online chatting methods, methods of teaching, and methods of learning a language as they are the subject matter of the Copyright Act. 1957.
8. ***Topography of integrated circuits***: Protection of layout designs of IC is provided separately under the Semiconductor Integrated Circuit Layout Designs Act, 2000.

9. ***Plants and animals***: Plants and animals in whole or any part including seeds, varieties and species and essentially biological processes for the production or propagation of plants and animals are excluded from the scope of protection under patents.
10. ***Traditional knowledge(TK):*** An invention that in effect is traditional knowledge or which is an aggregation or duplication of known properties of traditionally known components is also excluded from patents. Example different dance forms.

2.1.7. Patent Infringements: If anyone uses the invention without the prior permission of the owner, that act will be considered an infringement (violation) of the invention. Infringements can be classified into TWO categories:

1. ***Direct Infringement***: When a product is too similar to a patented product, or if the invention is used for commercial purposes without the owner's permission.
2. ***Indirect Infringement***: If someone unintentionally commits an act of fraud or infringement, the patent holder has the right to take legal action against them. Every country has laws in place to handle such situations. The following reliefs are made available to the patentee:
    a. *Interlocutory/interim injunction.*
    b. *Damages or accounts of profits.*
    c. *Permanent injunction.*

2.1.8. Avoid Public Disclosure of an Invention Before Patenting:

- Publicly displayed or published inventions can't be patented, but the Patents Act allows a 12-month grace period to file for a patent application from the date of its publication or presentation in a reputed scientific society or exhibition.
- In some cases, it may be necessary to disclose details about your invention before filing a patent application. For example, if you're trying to sell your invention to a potential investor or business partner, they may want all the details to assess its commercial value. In such situations, it's important to protect yourself by signing a Non-Disclosure Agreement (NDA) or another type of confidential agreement. This will help to safeguard your interests and prevent your invention from being misused or stolen.

2.1.9 Process of Patenting:*** In India, the process of granting a patent is a lengthy procedure that may take anywhere from 3-4 years or more. The major steps involved in this process are listed in Figure 2.1.

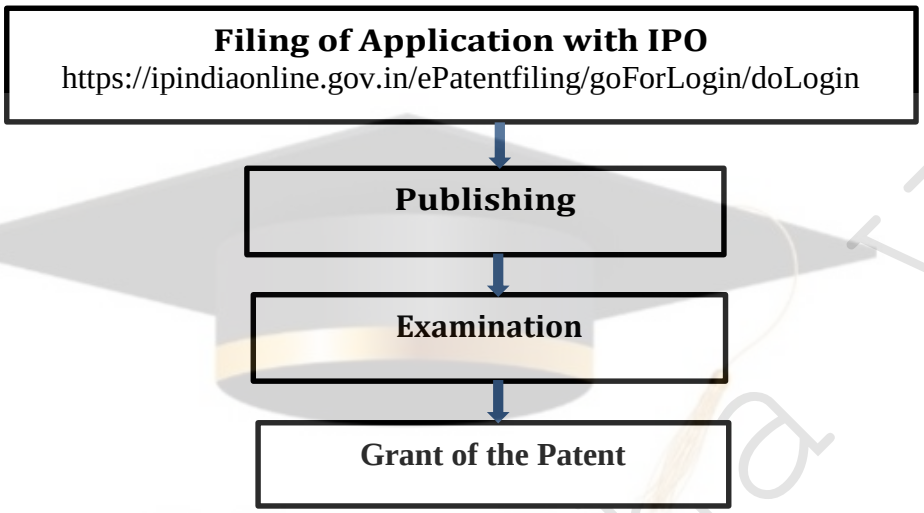


Figure 2.1: Flow chart of major steps involved in the grant of a patent.

- **The process of granting a patent involves several steps. These steps are as follows: *****
    1. *Prior Art Search*
    2. *Choice of Application to be Filed*
    3. *Patent Application Forms*
    4. *Jurisdiction of Filing Patent Application*
    5. *Publication*
    6. *Pre-grant Opposition*
    7. *Examination*
    8. *Grant of a Patent*
    9. *Validity of Patent Protection*
    10. *Post-grant Opposition*

1. **Prior Art Search:**

- It ensures to finding of any previously disclosed information that can help prove the patentability of an invention.
- A patent application will be compared to the prior art to determine whether it describes a new invention, and whether or not a patent should be granted.
- An inventor has to check whether or not his invention already exists in the public domain.

- Conducting a prior art search before filing the patent has advantages as it averts infringement, tracks research and development and provides access to detailed information on the invention.
- The prior art search is carried out on parameters such as novelty, patentability, state of the art, infringement, validity and freedom to operate.
- The commonly used databases for prior art search fall into Two categories i.e.

A. Patents' Databases

- Indian Patent Advanced Search System (*InPASS*- http://ipindiaservices.gov.in/publicsearch/).
- Patentscope(*WIPO*- https://www.wipo.int/patentscope/en/).
- Espacenet(*EU*- https://worldwide.espacenet.com/patent/).
- USPTO(*USA*- https://www.uspto.gov/).
- Google Patents Advanced Search (*https://patents.google.com/advanced).*

Unpaid

- Orbit Intelligence (https://www.questel.com/business-intelligence-software/orbit-intelligence/).
- Derwent Innovation (https://clarivate.com/derwent/solutions/derwent-innovation/).
- PROQUEST (https://about.proquest.com/search/?searchKeyword=patent+).

Paid

***B.* Non-Patent Literatur (NPL) database:** The following are the suitable resources to access the NPL database

1. ***Scholarly publications***: Handbooks, Textbooks, Withdrawn Patents, Encyclopedias, Journals (IEEE, Research Gate, Springer, Wiley Online Library, etc.), Dissertations, NCBI's PubMed, Conference Proceedings, Technical Reports, Public Conferences, etc.
2. ***Industry/trade publications:*** Industry reviews and public disclosures (Social media, YouTube, Books, Magazines, datasets, Blueprints, etc.).
3. ***Major Patent Offices:*** such as the United States Patent and Trademark Office (USPTO), European Patent Office (EPO), and Japan Patent Office (JPO), etc. are maintaining in-house NPL databases to make the patent examination more effective.
4. ***Others:*** Newspapers, Websites, Technology blogs, Researchers' websites, etc.

2. Choice of Application to be Filed :

- There are two types of applications used to file patents: (1) Provisional patent application or (2) Complete (Final) patent application.
- Generally, the provisional patent application is preferred for the following reasons:
  a. *It is cheaper, takes less time, and involves fewer formalities.*
  b. *Any improvements made in the invention after the filing of the provisional application can be included in the final application.*
  c. *A provisional application allows you to secure a priority date for the patent applied.*
  d. *However, file a complete patent within 1 year of provisional or it will be rejected.*

3. Patent Application Forms: Two application forms are used to file a patent

a. ***Form-1:*** The application for the grant of patent. It is general including, Title of Application, Names of Applicant(s) and Inventor(s), Type of Application, Divisional, Patent of Addition, etc.
b. ***Form-2:*** It includes technical and specification information and whether to file the provisional application or complete the application. For Provisional Application', only the Description of the Invention' and the Abstract are to be furnished. Whereas, Complete Application' requires a Description of the Invention, Abstract', Claims' and how the invention has to be performed.

- The details about the patent application template and format can be obtained from Source: *http://www.ipindia.nic.in*

4. Jurisdiction of Filing Patent Application: India has four offices for filing patent applications (Table 2.1). The applications can be filed only in one of the offices based on the applicant's residence or domicile or place of business or origin of the invention. These are termed as jurisdictions to file patents.

Table 2.1: Jurisdiction to file a patent in India.

Region	States	Address
Northern	Haryana, Himachal Pradesh, Punjab, Rajasthan, UP, Uttarakhand, Delhi and the Union Territory of Chandigarh, J&K and Ladakh.	New Delhi
Southern	Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Telangana and the Union Territories of Pondicherry and Lakshadweep	Chennai
Western	Maharashtra, Gujarat, MP, Goa and Chhattisgarh and the Union Territories of Daman and Diu & Dadra and Nagar Haveli	Mumbai
Rest of India	Remaining States	Kolkata

For detailed address- Source**:** http://www.ipindia.nic.in/jurisdiction-of-patent-offices.htm

5. Publication: Once the patent application has been filed at the Regional Patent Office, the patent application is kept secret for 18 months in the Patent Office. After the expiry of 18 months, the application is published in the Official Journal of Patent Office *(http://www.ipindia.nic.in/journalpatents.).* The purpose of publishing the application is to inform the public about the invention. The publication of an application is a mandatory step.

6. Pre-grant Opposition:

- If anyone objects to the invention claimed in the patent application, they can challenge it by approaching the Controller of Patents within 6 months of publication. This is called pre-grant opposition.
- Depending on the outcome of the case, the patent application may be rejected or recommended for the next step, i.e. patent examination.
- Patent applications are secret for 18 months but can be reduced if the patentee /applicant plans to sell or license the patent or seek an investor. Submitting Form-9 to the Controller General is required in such cases.

7. Examination - Patent examination is a critical step in the process of granting a patent. All the important criteria (novel, inventive step, etc.) are scrutinized by the professionals depending on the content of the invention. Usually, the examiner raises certain queries/doubts which need to be addressed by the inventors. Once the examiner is satisfied with the answers received from the inventors, the application is recommended for the grant of a patent.

It's important to note that a patent application does not undergo automatic examination after publication. The applicant or their representative needs to file Form-18A and make a request for examination of the patent within 48 months of filing the initial application.

8. Grant of a Patent:

- After meeting all the requirements, including addressing objections from the Patent Examiner and the public, the applicant is granted the patent.
- After a patent is granted, it is published every Friday in the Official Journal of the Patent Office. This journal contains information regarding patent applications under section 11A, post-grant publication, restoration of patents, notifications, list of non-working patents, and public notices.

9. Validity of Patent Protection:

- When an applicant files for a patent, they are granted protection for a limited period of 20 years.
- To maintain a patent in India, the Patent Renewal Fee must be paid annually as per Section 53, Rule 80 of the Indian Patents Act until the patent grant period expires.
- Non-payment of the Patent Renewal Fee might result in the cancellation of the patent.
- Some countries extend patent protection beyond 20 years to account for the time-consuming administrative approval process before products can be marketed. As a result, patent owners may not benefit from their rights for a considerable time after obtaining the patent.

---

10. Post-grant Opposition: A granted patent can be challenged within a year. Challenges can be made through the Patent Office or in a Court of Law. If successful, the patent may be invalidated or revoked. A successful challenge by the interested party on the grounds mentioned below:

a. *The applicant for the patent wrongfully obtained the invention or any part of the invention.*
b. *The invention claimed has been published before the priority date.*
c. *The invention claimed was publicly known/used before the priority date.*
d. *The invention claimed is obvious and does not involve an inventive step.*
e. *The subject of the claim is not patentable as per the Patent Act, of 1970.*
f. *The details/specifications of the invention do not sufficiently and clearly describe the invention.*

2.1.10. Commercialization of a Patent: The patent owner may allow an individual, organization, or industry to manufacture, use, and sell their patented invention, subject to agreed-upon terms and conditions. A patent owner may grant a license to a third party for the reasons mentioned below:

- *The patent owner has a decent job e.g. university professor and has no desire or aptitude to exploit the patent on his own.*
- *The patent owner may not have the necessary manufacturing facilities.*
- *The manufacturing facility is not able to meet the market demand.*
- *The patent owner wishes to concentrate on one geographic market; for other geographical markets, he may choose to license the patent rights.*

- The licensing of a patent can be

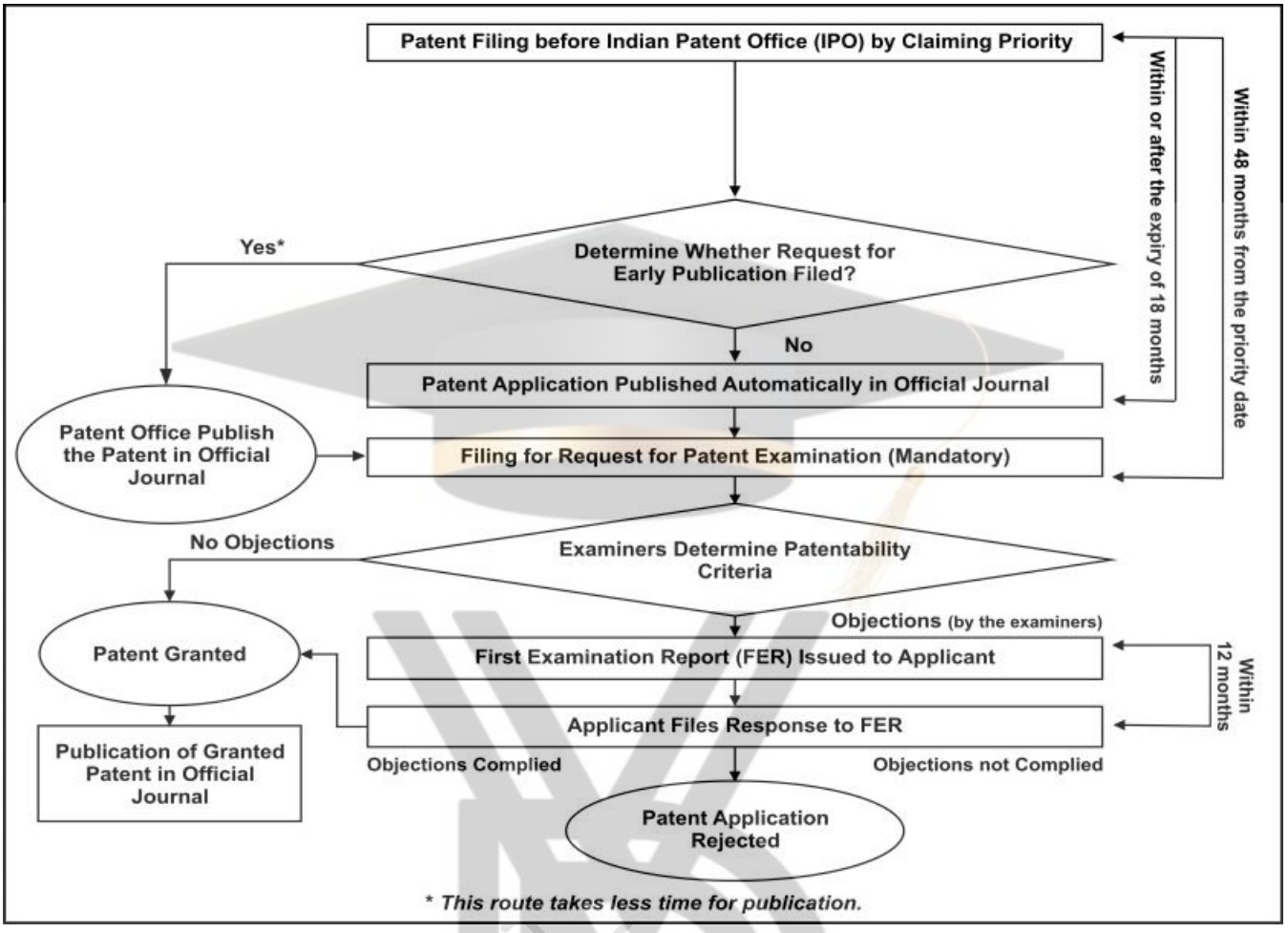
1. *Exclusive Licence*: An Exclusive Licence, the patent is sold to only one individual/organization for a fixed period. During this period, no other person or entity can exploit the relevant IP except the named licensee.
2. *Non-exclusive Licence*: In a Non-Exclusive Licence, a patentee can sell his patent rights to as many individuals/parties as he likes.

- ***Compulsory Licensing:*** If the patentee is not able to commercialize his patent within three years from the date of the grant of a patent, any person may submit an application to the Controller of Patents for the grant of "*Compulsory Licensing"* subject to the fulfilment of following conditions:
    a. *Reasonable requirements of the public concerning the patented invention have not been satisfied.*
    b. *The patented invention is not available to the public at a reasonable price.*
    c. *The patented invention has not worked in the territory of India.*

2.1..11 Need for a Patent Attorney/Agent

- Although individuals can file patent applications on their own, it is recommended to seek legal assistance from a patent attorney or agent due to the complexity of patent documents.
- Some countries require foreign applicants to have a local attorney or agent to represent them.

Figure 2.4: Flowchart for the process of filing a patent application.



Source: https://www.invntree.com/ *(slightly modified)*

2.1.12. Can a Worldwide Patent be Obtained

- Patent rights are territorial, meaning there's no such thing as an "International Patent." To seek protection, you must apply with the Patent Office of the country where you want protection. However, filing in multiple countries is laborious, time-consuming, and expensive.
- To ease this issue, many Regional Offices have been established that receive patent applications on behalf of a group of nations e.g. European Patent Office and the African Regional Intellectual Property Organization. A single application is sufficient to cover many nations that are members of a particular regional office/organization.
- However, if one wishes to seek patent protection in several countries worldwide, it is preferred to file an international patent under the Patent Cooperation Treaty (PCT). The only condition is that the applicant's country should be a member of PCT. India, along with over 190 nations, is a member of PCT.

2.1.13. Do I Need First to File a Patent in India

- In general, Indian residents are required to file a patent application first in India.
- Subsequently, they may file for patent protection in other countries. But for this, prior approval is needed from the Patent Office. However, this approval can be waived off under the following circumstances:
  - *The applicant is not an Indian resident.*
  - *If two or more inventors are working on an invention in a foreign country and one of the inventors is an Indian resident.*
  - *The invention does not have a potential market in India and hence does not wish to file the patent in India. In such a scenario, the Indian resident has to seek Foreign Filing Permission (FFP) from an Indian Patent Office.*
  - *In the case of international collaboration, if one part of the invention originated in India and the inventor is an Indian resident, he has to seek permission to file the patent outside India.*
  - *If the invention is related to defence or atomic energy or utility model, the inventor/s needs to seek permission from the Indian Patent Office because inventions related to these domains are not the subject matter of patentability in India.*

2.1.14. Patent-Related Forms: There are over 30 patent-related forms. Some of them are mentioned below.

Table 2.2: List of important patent application forms.

Form No.	Title of Form
1	Application for a grant of a patent
2	Provisional/Complete specifications
7	Notice of opposition on grant of a patent
7A	For filing a representation opposing the grant of a patent
17	Application for compulsory license
18	Request for examination of the application for patent
21	Request for termination of compulsory license
22	Application for registration of patent agent
27	Statement regarding the working of the patented invention on a commercial scale in India
30	Miscellaneous form to be used when no other form is Prescribed

More details: **Source:** http://www.ipindia.nic.in/writereaddata/Portal/IPORule/1_70_1_The-Patents-Rules-2003-Updated-till-23-June-2017.pdf

2.1.15. Fee Structure: As per the Patent Act and Rules(1970), the requisite fee has been specified based on the type of form/s to be submitted to the Office Electronically filed applications are 10% cheaper than physical filing. Fee details are shown below

Table 2.3: Fee for obtaining a patent via electronic filing.

Item	Natural person/ startup (₹)	Small entity alone or with a natural person /startup (₹)	Others alone or with natural person/ startup/ small entity (₹)
Provisional/Complete Specifications	1,600	4,000	8,000
Request for Early Publication	2,500	6,250	12,500
Request for Examination	4,000	10,000	20,000
Express Request For Examination	5,600	14,000	28,000
Renewal Fees (Annually)			
3rd to 6th Year	800	2,000	4,000
6th to 10th Year	2,400	6,000	12,000
11th to 15th Year	4,800	12,000	24,000
16th to 20th year	8,000	20,000	40,000

Source: http://www.ipindia.nic.in/writereaddata/Portal/IPOFormUpload/ 1_11_1/ Fees.pdf

2.1.16. Types of Patent Applications: The main types of applications are

1. ***Provisional Application:*** This patent application is filed for inventions that are still under experimentation to obtain a priority date.
2. ***Ordinary Application***: A patent application filed with complete specifications and claims but without claiming any priority date.
3. ***Patent Cooperation Treaty (PCT) Application:*** A single application can be filed to seek patent protection and claim priority in all the member countries of PCT.
4. ***Divisional Application:*** If an application includes multiple inventions, the applicant can divide it into two or more applications. This is called a Divisional Application.
5. ***Patent of Addition Application:*** When an invention is a slight modification of the earlier invention for which the patentee has already applied or has obtained a patent, the applicant can go for Patent of Addition', if the modification in the

invention is new. The benefit is there is no need to pay a separate renewal fee for the Patent of Addition, during the term of the main patent. It expires along with the main patent.

6. ***Convention Application***: If a patent application has been filed in the Indian Patent Office, and the applicant wishes to file the same invention in one or more Convention countries (e.g. Paris Convention) by claiming the same priority date on which application was filed in India, such an application is known as Convention Application. The applicant has to file a Convention Application within 12 months from the date of filing in India to claim the same priority date.

2.1.17. Commonly Used Terms in Patenting: Certain terms are commonly used in the field of patenting, as listed in the table below

Sl. No	Term	Definition
1.	Inventor	Creator of an invention
2.	Applicant	Organization/individual/industry that files a patent application or applies for a patent
3.	Patentee	A person/organization who owns the patent (granted)
4.	Licensee	Organization/individual/industry which obtains a license of the patent from the Patentee for commercialization purpose
5.	Assignee	A person in whose name patent has been assigned legally
6.	In force	The applicant is paying the annuity (renewal fee) for the patent to keep it alive Patent)
7.	Working on a Patent	The selling of a patent to an individual/party for commercial exploitation is called as working of a patent
8.	Patent Specification	Patent specification is a written description of the invention and the way of representation and process of making and using the same
9.	Priority Right	A _Priority Right‘ or _Right of Priority‘ is a time-limited right, activated by the first filing of an application for a patent
10.	Priority Date	The claimed date on which the first application for the invention is filed
11.	Patent Claims	Claims can be defined as the scope of the protection conferred by a patent or the protection sought in a patent application. The purpose of the claims is to define which subject matter is protected by the patent
12.	National Phase Application	An application filed to obtain patents in different countries simultaneously based on a single International/PCT application
13.	Patent Revocation	The revocation means cancellation of the patent due to certain reasons, such as lack of patentability or wrongfully obtaining a patent
14.	Restoration of Patent	Once a patent has been ceased (e.g. due to non-payment of the fee) it can be restored within a permitted period by paying the requisite fee

2.1.18. National Bodies Dealing with Patent Affairs: There are many departments/ organizations/bodies dealing with various aspects of patents, namely

i. *Indian Patent Office (IPO)*
ii. *Department for Promotion for Industry and Internal Trade (DPIIT)*
iii. *Technology Information Forecasting and Assessment Council (TIFAC)*
iv. *National Research Development Corporation (NRDC).*

2.1.19. Utility Models:

- In many cases, a new invention involves an incremental improvement over the existing products, but this technical improvement is not sufficient enough to grant a patent.
- Such small innovations can still be legally protected in some countries and termed as 'Utility Models' or 'Petty Patents' or 'Innovation Patents'.
- The Utility Model is a helpful tool for Micro, Small and Medium Enterprises (MSME).
- Grant of a Utility Model' is usually less rigorous and involves minimal cost.
- Utility models are good enough for improving products/processes and bringing more financial rewards.
- The life of the Utility Model is less as compared to the patents. It varies from 7-15 years in different countries.
- Nearly 80 countries protect Utility Models under their IPR laws. India to date does not recognize utility patents.

VTU QUESTIONS- MODULE 3

- **DEC 2023/JAN 2024**

Module-3

5 a. What is definition of Intellectual Property (IP)? In what way does Intellectual Property contribute to economic growth and cultural development in a society? **(10 Marks)**

b. Discuss the history of Intellectual property in India. **(10 Marks)**

OR

6 a. Explain the step by step process of obtaining a patent. From the initial idea to the grant of the patent. **(10 Marks)**

b. What are the commonly used terms in the field of patenting and how do they contribute to effective communication in this domain. **(10 Marks)**

- **MODEL QP 1- 2024-2025**

Q. 05	a	Describe Intellectual Property Rights (IPR) and list its types.	L1	6
	b	Define the term patent and what are the conditions that must be met for obtaining patent protection?	L2	8
	c	What are Patent Infringements? Explain its two categories of Infringements.	L1	6
		OR		
Q. 06	a	Explain the following major steps involved in the process of patent registration. *(i)* Prior Art Search (ii) Choice of Application to be Filed *(ii)* Pre-grant Opposition	L2	10
	b	In which circumstances Indian residents are not required to file a patent application first in India to get patent protection in another country? Explain.	L3	6
	c	Name the four national bodies dealing with patent affairs	L2	4

- **MODEL QP 2- 2024-2025**

		Module-3		
Q. 05	a	What types of inventions are eligible for patenting, and which matters are considered non-patentable?	L2	10
	b	Explain the major steps involved in the process of filling patent applications using a flow chart.	L1	10
		OR		
Q. 06	a	Explain the different types of patent applications.	L1	8
	b	What strategies are involved in the commercialization of a patent?	L2	7
	c	What are utility models, and how do they differ from patents?	L1	5

- ***Acknowledgment:***

I would like to express my sincere thanks to Prof. Rupinder Tewari and Ms. Mamta Bhardwaj. The contents were taken from their textbook " Intellectual Property A Primer for Academia " published by Publication Bureau Panjab University Chandigarh.

Prepared by:
Dr. Suresha V
Professor & Principal
Dept. of Electronics and Communication Engineering.
Reach me at: suresha.vee@gmail.com
WhatsApp: +91 8310992434