

# ROADMAP FOR PATENT CREATION

## IMPORTANCE OF LABORATORY NOTEBOOK

### LECTURE 27

A very warm welcome in the second module of week 6 of the Course, roadmap for patent creation, titled "Laboratory Notebook".

- Introduction
- Purpose
- The Inventor's Lab Notebook
- Keeping a Laboratory Notebook
- The content of the Inventor Lab Notebook
- How to write?
- Observations and Data
- Calculations and Result
- Precautions
- Electronic Lab Notebook

#### INTRODUCTION

- A bound notebook, not a loose-leaf or spiral notebook with serially numbered pages.
- A permanent legal record of a scientist's investigations.
- Useful only if it contains sufficient information to enable someone else to reproduce the results of any experiment described in the notebook.
  - This will help the inventors to avoid dead results/ends and repetition of errors.
  - This is creating a legal record that inventor will be the first and true inventor if the invention of inventor ever challenged in court

#### PURPOSE

- The whole point of a laboratory notebook is that it should say exactly what was done, and when.
  - Make clear who did it.

- Enable someone else to do the same thing at some future date.
- Be durable and verifiable.
- It should cover all legal information related to the invention.
- The Inventor's Lab Notebook
- A permanent legal record of a scientist's investigations.
- Detailed record of all the research, hypothesis, experiments, experiment thoughts processes, and detailed recording of an experimental procedure, equipment, supplies and initial analysis or interpretation of experiment and trials.
  - it is designed to concentrate or focus inventor attention on all important activities which are associated with the successful invention when the idea comes in inventor mind firstly.
  - Looks forward to what is intended to do

#### Keeping a Laboratory Notebook

- Lab notebook belongs to the institute, not the person who is doing the research.
- Laboratory notebook is not a legal document, but if it is properly maintained and well organized, then it can be considered.
  - The pages of the notebook should be numbered, which significantly reduces the possibility of a successful challenge to the validity of any entry.
    - good quality paper will be used.
    - the ink used must be permanent, not water or solvent reactive, and does not smear.
    - The entries in the notebook should be legible and factually complete.
    - it should be stored in a safe place and should not be treated as a freely available publication.
      - it would be less likely to be stolen or lost. However, the secrecy or confidentiality of this document should be carefully ascertained beforehand.
    - it might be physical book or may be an electronic lab notebook

#### The content of the Inventor Lab Notebook

- Statement of purpose/Problem of statement of the experiment.

- Procedure/Experimental plan in short.
- Comment on any special features
- All measurements
- As soon as anyone finishes collecting the data, present some preliminary conclusions:
  - what worked
  - what didn't
  - what else will need to be done to complete the analysis
- Comment on any special features of the materials to be used - perhaps they require special storage or handling, or there may be several varieties of the compound available (hydrates or anhydrous, maybe)
  - Some Additional records which will support the notebook i.e., photographs, computer pages, or test results can be included
  - The inventor lab notebook will note the problems of the project as well as the procedure of experiment.
  - If a test related to project or invention is conducted on some device, the inventor must be provide characteristics and identify the device.
  - include a detailed explanation of the invention and method of process or products and references related to experiments.
  - includes all the inventor member of the group.

#### How to write?

- Use simple, direct statements or a bulleted or numbered list of instruction
- Do not repeat the introduction
- Incase of biology related material note culture specifications. Such factors are very important and must be recorded.
- Don't repeat Lab manual. If any changes in standard procedure, please elaborate it.
- May right expected result.
- If possible, note time of important entry
- All measurements should be recorded immediately and directly.

- Any necessary arithmetic to convert your numbers to other units, to average two numbers, etc. should be done in a second step, and also recorded.
- Remember to record the units for dimensioned quantities, and always estimate the uncertainties in any measured quantity.
- Please include all conditions of the experiment and all apparatus with sketches if appropriate. For ex. mechanical/electrical inventions, full details of the apparatus, including circuits and settings, must be provided.
- Make all entries in ink, directly into the lab notebook.
- Black ball point pen is best.
- Do not use pencil.
- If a mistake is made, draw a single line through the mistake and write the correction above the line
- Do not obliterate or use whiteout.
- Take care with numbers
- never over-write
- Any graphs, drawings or other loose sheets should be carefully affixed in the book by some permanent method.
- Record all novel concepts and ideas relating to the work.
- ensure that each page is signed and dated by the author and witnessed as soon as possible. Do not leave any pages undated, unsigned or unwitnessed.
- The inventor does not leave the blank spaces or never leave the back-date entries on inventor's notebook.
- Labnotebook must contain all the relevant information related to the invention that would be required for an inventor or any other person to reproduce inventor experiment completely
- Begin the notebook with a table of contents.
- Enter the title, date and page number of each experiment when you perform it.
- It is suggested to write weekly work plan for better organization of work.
- Use a new page for each experiment.
- Fill details as date - write month clearly as 3 July 2007 and not 03/07/2007), title, lab partner if any.

## Drawings

- Provide diagrams (sketches, electronic schematics) of the apparatus, with complete information on settings of controls and other relevant instrumental data.
- As a rule of thumb, these should be sufficiently detailed that you (or someone else) would have no trouble reproducing your experimental setup.
- Drawings need only illustrate novel apparatus.
- Drawings should be large enough to allow labeling
- Drawings should be simple and to the point.
- When you start a measurement, state briefly what its goal is - just a few key phrases to remind yourself exactly what you will be trying to do.
- As you go along, get down enough information to indicate what you are doing at that moment. Remember to note the times.
- Graph
- Each graph should have the experimental title and the date written clearly.
- The axes must be labeled with the quantity divided by its unit.
- Include error bars if you know the error limits.
- Give a clear table of the data you used to plot the graph.
- Immediately convert information into a graph. This will not only often provide some 'intuition' about their correlation, but will usually allow you to spot quickly any departure from a smooth dependence, which might indicate a problem with the equipment or an error in that single measurement.
- Observations and Data
- The observation and results of the invention should include everything which happens during the experiment, including expectations and anticipation.
- The inventor's lab notebook also includes experimental observations, which is concluded with a discussion and conclusion.
- Discuss mistakes and errors of the measurement equipment.
- All writing which is facilitating data entry should be planned out in advance,
- results may include charts, tables, graphs, printouts, picture, films and calculations,
- Record honestly

- Record as you go along, in the notebook, in ink, immediately. Do not trust to memory, even for a minute or so - someone talks to you, and that data is forgotten.
- Please note you do not want your mind occupied with trivial things and small details. You need to keep the overall experimental plan in mind.
- Calculations and Result
- Show your calculations. If there are many calculations that are the same, show one set and present the other results in a table.
- Summarize your results in tabular or graphical format if possible. Otherwise, write a summary sentence.

#### Precautions

- Check the pages are numbered sequentially beginning with the first page.
- At least weekly or fortnightly signature of supervisor
- Signature of supervisor on important entries.
- Write legibly! If you ever use your laboratory notebook to reconstruct experimental details for use in a manuscript, poster, or seminar presentation, you will be miserable if you haven't been reasonably neat. Your notebook does not have to be a work of art, but it should be easily readable by other.
- The data must be recorded as completely as is possible.
- Don't worry too much about interpreting the data.
- Also remember, Sometime omission of even the simplest things can dramatically affect the outcome of an experiment.
- Electronic Lab Notebook
- electronic lab notebooks are offered by the companies especially pharmaceutical companies big corporates.
- Pharmaceutical companies / MNCs have a large number of researchers, officers and they need electronic lab notebook for keeping their data such as formula, ideas, procedure, the method in this document for their experiment purpose.
- This lab notebook basically is a virtual notebook, in which a researcher or inventor scan the note pages and send them to oneself by emails.

- A laboratory notebook is an important tool that goes well beyond research management and can have important implications for issues ranging from intellectual property management to the prevention of fraud.

- The inventor's lab notebook generally includes any necessary or important background and references, an explanation of why the experiments were done, how the experiments were performed and the what is the results of experiments.

- 

Video

With this we come to the end of this session. In the next session, “In which technical category my invention falls?-IPC”, we will learn about .....See you in the next session

thank you!