Connecting .... 4 Aerospace PhD Students

PPP (**Papers**, PhD students, Projects)
These are three **P** which are important for Assitant/Associate/Full Professor.

- Read **ugc guidelines for assistant professor** to get the idea what Indian colleges are looking in the candidate.

- However, for PhD student, who will seek for assistant professor position in their future, **only** papers are important.

- PhD topic must be such that PhD candidate can publish papers, get postdoc, get job, and get project easily. In other words, research area should be new and trending research topic which make you future life easy and peaceful.

Part I

PhD

- Regularly visit Apna IITKGP and attend relevant seminar (apart from our department).

- Calendar for tracking the conference and targets. Make use of holiday and Bdays to remain connected with friends/Prof./Guide/Foreign Prof.

- **Sticky Notes** for scheduling the tasks

- Make your website and keep it update. Use GitHub

- List of professor

    - Make a list of professor in your area so that you can find out who are the people working in your area.
    - Helpful in targeted collaboration
    - Helpful during synopsis
    - Helpful after PhD
    - Helpful in making the list of university
    - Subscribe to their google scholar profile, RG profile, and other profiles.

- List of University

- – Make a list of University in your area so that you can find apply for postDoc and find the postion and fellowship

- List of Fellowship

  - – DUO-India Fellowship Programme

- List of Journal and **make alert** very important

- Project (very important): learn how to write project and how to find the funding agency

- Article

  - – Review article will give citation.
  - – An article has 4 point; 2 point for first author (you); 2 points for remaining author;
  - – Include your friends (contributor) name as second author; First author (you) still getting 2 points; your friend (contributor) will be benefit.
  - – If you contribute in your friends paper, your friend as first author will get 2 points, you as second author will get some points, and rest authors (supervisor/guide)will get some points
  - – Always be a first author or second author or corresponding author.
  - – Check the quality of journal at Scimago

- Book chapter (important): 1 and 2 are sufficient

- Patent (optional): 1 is sufficient

- Lab Setup: learn the experience, it will be helpful after getting the Asst. Prof. position. Take certificate very important.

- Website for searching the literature

  1. Scopus and click on number in the **cited by** column.
  2. Research Gate
  3. Journal website very helpful; while put latest paper for target journal.
     (a) Always cite last 2 year papers of targeted journal. For editor, his/her journal impact is important and you are helping to improve the impact factor.

- Citation key for bibTEX with DOI

  1. Crossref click here
  2. Google scholar does not include DOI
  3. Use cite option for particular article from the journal website

- Notemaking: **Evernote**

- Cloud to keep the codes and reports

  1. DropBox; Signup using this link and get 500 MB click here

2. Mega
3. OneDrive use iitkgp email for 1TB
4. GoogleDrive

- Everything for searching the files and other things

- WordWeb, WordTune, Grammarly, quillbot for writing papers

- Writing report/papers: MikTEX + TeXStudio + LyX

  1. Write paper/report in LyX to save the time then export the tex file
  2. Run the tex file in the texstudio and submit the zip file in journal
  3. Texmaker is also good instead of TexStudio
  4. mathpix for writing equation from image.

- For presentation: Beamer document in LyX

- Texteditor: Notepad++ or sublime text

- Drawings: Inkscape (free) or Illustrator

  – First install miktex
  – Then, integrate textext in Inkscape for writing latex formula.

- Version control for code: Git + GitHuB

- Compression and extraction: 7Zip (winRar give popups)

- To mount image/iso file: Virtual Clone Drive

- Coding

  – MATLAB, Mathematica, Python
  – C, C++, Julia
  – Data structure and algorithm
  – Parallel computing, Open MP, MPI

- Software

  1. ANSYS
  2. ABAQUS
  3. COMSOL
  4. NASTRAN & PATRAN
  5. other check CIC website and software repo

- Plotting

  1. matplotlib in python

2. MATLAB

3. Origin Pro, TecPlot, or GNU plot

- Computational power

    – HPC

    – Paramshakti

- Use Remote desktop or Teamviewer and work from room. (Find the video inside the repo)

- Course/Workshop Noticeboard

    – Short term course

    – IIT KGP Events and courses

    – GIAN

    – Online course

    – Attend workshop organized by IIT KGP and other universities

- Building your professional network. **very important**.

- Make a list of professional bodies for prospect membership.

1. Semester 1

1. Make a list of conference

2. Learn LyX/Latex for writing conference paper

3. Learn Inkscape

4. Try for PMRF fellowship

5. Attend our library workshop

6. Learn how to used HPC

7. Learn about journal writing or proposal writing or any other stuff.

8. Improve coding

9. Important websites: Internation relation IITKGP, CDC, Internation Relation Cell Facebook, Department Facebook Page, APNA IITKGP and check semester 6. To grab the opportunity, don't miss the information.

2.   Semester 2

1. Read fundamental book and papers

2. Know all your seniors and their work areas. With this we can get some help from seniors.

3. Do literature survey

4. Balance TA work

    (a) There is no point for TA. Balance your research work.
    (b) But if you are under your guide/DSC then put effort. It will improve your relation with guide/DSC.
    (c) If TA subject is within your research field then TA will help in improving the fundamental.

5. Work on comprehensive viva Questions

3.   Semester 3

1. Find the gaps in literature, discuss with group members.

2. Fix objective and scopes

3. Work on Registration

    (a) Download relevant thesis from IDR-IITKGP
    (b) Download thesis from other sources like shodhganga, proquest, OATD

4. Publish conference paper (in collaboration or individual).

    (a) Conference paper has 1 point (only 0.5 for first author). There is cap of maximum 5 points.
    (b) It will not help to become the Asst. Prof.
    (c) It will help to improve English and writing skill and other skills require to write papers.
    (d) Conference is for making contacts only and getting new idea.
        i. For Prof., thesis reviewer and collobration.

4.   Semester 4

1. Work on enhancement

2. Search code from GitHub

3. Keep working on research objective for writing your first paper

4. Start looking for short term course and other.

      (a) Make contact with that prof. during the short term course

5. Write first paper (in collaboration or individual): let it be rejected, feedback is very important to improve.

5. Semester 5

1. Start searching for prof. (make use of list) for Research Intern/Exchange program/Dual doctorate program

6. Semester 6

1. Foreign training opportunities through CDC website

2. International relation cell

3. RS opportunities

4. Upcoming opportunities

5. Foreign training program and login click here

6. Semester away, Student exchange and Joint Doctoral Programs check here

7. Extension seminar for 3 to 4 year

7. Semester 7

1. Keep working on PhD (8 hours)

2. Start working on new research area for postDoc according to list of professor, list of university, alert from journal. (1 hour)

3. Start looking for foreign prof for post doc.

8. Semester 8

1. Publish paper in collaborations

2. Extension seminar for 4-4.5 year

3. Look for people who can recommend (3 recommendations) you later. You have published a collaborated paper. Contact collaborated Prof.

   - Ask concern people to **recommendation** you (make use of calender).

4. Start thinking about postdoc and search prof., university, fellowship.

9. Semester 9

1. International conference

   (a) SERB funding

   (b) Shri Gopal Rajgarhia International Program

   (c) Other travel funding

2. Start writing **Thesis**

3. Learn how to write research project proposal according to the interest of the foreign prof.

4. Extension seminar for 4.5-5 year

10. Semester 10

1. Finish your thesis

2. Start writing synopsis report

3. Complete synopsis report

4. Procedure for Synopsis and Thesis submission: find inside the repo.

Part II
PostDoc (University QS ranking < 500)

11. Introduction

1. Research Intern after B. Tech. or M. Tech

2. Research fellowship for PhD

3. Postdoctoral Fellow (funding from institute)

4. Postdoctoral Fellow (student has its funding)

12. Type of fellowship

1. Teaching fellowship

2. Individual fellowships

   (a) Government funding

      i. National Science Foundation in the U.S
      ii. Deutsche Forschungsgemeinschaft in Germany

   (b) Institutional funding

12.1.   List of foreign fellowships

1. [Click here for list](#)

2. [GitHub](#)

3. [fulbrightonline](#), [marie-curie](#), [newton](#), [humboldt](#), and others

12.2.   List of Indian fellowships

1. [Noticeboard](#)

13.   Where to search for postdoc job

13.1.   Foreign

1. [academicpositions](#)

2. Canada [nserc-crsng](#)

3. USA [postdocinusa](#)

4. [academicjobsonline](#), [findapostdoc](#), [nature](#), [sciencecareers](#), [postdocjobs](#), [eurosciencejobs](#), [post-doc](#)

13.2.   India

- Go to IISC and then go to foreign

14.   Stage 1

- Start building your network.

- Start searching about a year before submitting your synopsis.

- Start your search for postdoc position by contacting the person(s) who cited you. Reference: [click here](#)

- Follow prof. and university website. Here make use of Lists (including fellowship). Reference: [click here](#)

- Where to search:

    1. Linkedin (follow targetted Prof. and university)
    2. Twitter (follow targetted Prof. and university)
    3. [Imechanics](#)
    4. [academicpositions.com](#), [findapostdoc](#) and [postdocjobs](#)

15. Stage 2

- **Email**: "Dear XYZ, I saw that the XYZ postdoctoral fellowship is being offered this fall. I'm trying finish my thesis this spring, and was considering applying. I would certainly be interested in working with you--are you currently looking to take on any postdocs? I'd be happy to discuss further if you're interested."

- **Cover Letter**: Emphasize how your work is relevant to the goal of the postdoc, and reframe your work within their context of the project. Briefly summarize your relevant qualifications for this position. You want to convey how the lab or department will benefit having you there, rather than how you will benefit from getting this postdoc.

- **Research Proposal**: Your research proposal explains the research you would do during the postdoc. You should introduce the topic while referring to past literature and point out the knowledge gaps in the field that your project will fill. Then go through your timeline of what you will accomplish (including publications) and when.

- **Research statement**: Unlike the research proposal, this document goes through your previous research experience and includes publications, talks, conference presentations or posters that have come from it.

- **CV**: click here

- **Recommendation**: Two or three good recommendation letters.

Reference: 1, 2, 3

16. Before thinking about postdoc

- Published good and many papers.

- Go to conference to make contact and find out what prof. are doing. Make list of people.

- Make CV

- Make Web page

17. During your last year

- Contact your listed people by saying thank you and wish them on their birth day or any specific occasional.

- Learn writing email about introducing yourself.

- Write research proposal include figure.

- Make ppt in addition to research proposal.

- Previous/Current Phd research

- – 2/3 page what you are doing now
- – Include attractive pictures. Graphical abstract will help here.
- – Highlight your skill relevant to publish papers.

- Research proposal for postdoc position

  - – What you will do in future related to post doc prof.
  - – Define problem
  - – How you will contribute to their lab.

Reference: Arizona

Part III
Academic position as faculty

- Become member of professional boards/institutions. It is good to take membership as it give wider connection for job and awards.

18. Assistant Professor

1. Outline your most significant contribution towards research.

2. How you as a faculty will contribute in the institute?

3. Present your vision for the department for the next five years.

4. Outline your proposed road map for teaching and research for the next five years.

5. How would you create an innovative learning environment?

Part IV
Nonacademic Job

1. Linkedin,

2. Subscribe to facultyplus, facultyon

3. UPSC (only for legends)

Thank You & Enjoy!