**Curriculum Plan: B.A. (Prog.) Mathematics (Semester VI)- Research Methodology**

**2024-25 Even Sem**

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| Dr. Rajni Kanwar  Assistant Professor  Department of Mathematics  Kalindi College  University of Delhi  Delhi- 110008  Mobile: 7607401426  **E- mail**: rajnikanwar@kalindi.du.ac.in | |  | **Marks Distribution** | **Theory** - 90 |
| **Internal Assessment- 30**  **Practical- 40** |
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| **Classes Assigned** | **Lectures: 3 per week**  **Practical: 1 per week** |
|  | **References** | 1. Bindner, Donald, & Erickson Martin (2011). A Student’s Guide to the Study, Practice, and Tools of Modern Mathematics. CRC Press, Taylor & Francis Group.  2. Committee on Publication Ethics- COPE (<https://publicationethics.org/>)  3. Declaration on Research Assessment. <https://en.wikipedia.org/wiki/San_Francisco_Declaration_on_Research_Assessment>  4. Evaluating Journals using journal metrics; (<https://academicguides.waldenu.edu/library/journalmetrics#s-lg-box-13497874>)  5. Gallian, Joseph A. (2006). Advice on Giving a Good PowerPoint Presentation (https://www.d.umn.edu/~jgallian/goodPPtalk.pdf). MATH HORIZONS.  6. Lamport, Leslie (2008). LaTeX, a Document Preparation System, Pearson.  7. Locharoenrat, Kitsakorn (2017). Research Methodologies for Beginners, Pan Stanford Publishing Pte. Ltd., Singapore.  8. Nicholas J. Higham. Handbook for writing for the Mathematical Sciences, SIAM, 1998.  9. Steenrod, Norman E., Halmos, Paul R., Schiffer, M. M., & Dieudonné, Jean A. (1973). How to Write Mathematics, American Mathematical Society.  10. Tantau, Till,Wright, Joseph, & Miletić, Vedran (2023). The BEAMER class, Use Guide for Version 3.69. TeX User Group. (<https://tug.ctan.org/macros/latex/contrib/beamer/doc/beameruserguide.pdf>)  11. University Grants Commission (Promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions) Regulations 2018 (The Gazette of India: Extraordinary, Part-iii-Sec.4) | | |
|  | **Week** | **Topics** | | |
|  | **1st week** | How to learn mathematics, How to write mathematics: Goals of mathematical writing | | |
|  | **2nd week** | General principles of mathematical writing, avoiding errors, writing mathematical solutions and proofs, the revision process | | |
|  | **3rd week** | What is mathematical research, finding a research topic | | |
|  | **4th week** | Literature survey, Research Criteria | | |
|  | **5th week** | Format of a research article (including examples of mathematical articles) and a research project (report), publishing research, Presentation of students. | | |
|  | **6th week** | How to present mathematics: Preparing a mathematical talk | | |
|  | **7th week** | Oral presentation, Poster presentation. | | |
|  | **8th week** | Use of technology which includes LaTeX. | | |
|  | **9th week** | Use of technology which includes PSTricks | | |
|  | **10th week** | Use of technology which includes Beamer. | | |
|  | **11th week** | Presentation of students and Revision. | | |
|  | **12th week** | MAA, AMS, SIAM, arXiv, ResearchGate; Journal metrics: | | |
|  | **13th week** | Impact factor of journal as per JCR, MCQ, SNIP, SJR, Google Scholar metric; Challenges of journal metrics; | | |
|  | **14th week** | Reviews/Databases: MathSciNet, zbMath, Web of Science, Scopus; Ethics with respect to science and research | | |
|  | **15th week** | Plagiarism check using software like URKUND/Ouriginal by Turnitin, Revision, class test | | |
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