**BUREAU OF INDIAN STANDARDS**

**AGENDA**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Committee*** | | ***Meeting No.*** | ***Day, Date and Time*** | | | | ***Venue*** |  |
| **Guidelines to provide the information services to Researchers MSD05 /Panel 19** | | **8th** | **Thursday**  **19th December 2024,**  **11:30 AM** | | | | **Green Room,**  **BIS HQ ,**  **Hybrid (Virtual + Physical)** |  |
| **CONVENER**: Prof. Shailendra Kumar  Former Senior Professor(University of Delhi) | | | **MEMBER SECRETARY**:  Mr. Kishore Mandal Sc.-C/Deputy Director MSD | | | | | | |
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**Item 0** **GENERAL**

**0.1** Welcome by BIS

**0.2** Opening Remarks by the Convener.

**Item 1**  **PANEL COMPOSITION**

The Present composition of the panel under MSD 05 is placed at **[Annex A.](#aa)**

*Panel may review.*

**Item 2** **DISCUSSION ON WORKING DRAFT**

Panel members assigned with headings based on their volunteer preferences, with brief paragraphs to be written under each heading. Inputs received from the members are placed as draft document placed at [Annex B](#b)

*The Panel may review the draft document.*

**Item 3** **ANY OTHER BUSINESS**

[**Annex A**](#a)

**Panel Composition:**

1. Prof. Shailendra Kumar, Former Senior Professor,University of Delhi, (Convener)
2. Dr. R. K. Verma, Editor IJLINK & Former Chief Scientist,([In Personal Capacity](javascript:;))
3. Dr. Babita Gaur,Librarian Gargi College, DU.
4. Dr. Neeraj Kumar Chaurasiya, Indian Institute of Technology Delhi
5. Dr. P. R. Goswami, Former Librarian, IGNCA, New Delhi
6. Prof. Manoj Kumar Joshi, Kurukshetra University, Kurukshetra
7. Dr. Ajit Kumar, Director, CSL, New Delhi
8. Dr. Shiva Kaunojia, Jawahar Lal Nehru University, New Delhi
9. Dr. Projes Roy Jt. Director (In Personal Capacity)
10. Dr. Abhishek Sharma, Principal Scientist, [CSIR - NPL, New Delhi](javascript:;)
11. Dr. Mayank Trivedi, University Librarian, MS University of Baroda.
12. Dr. Shalender Singh Chauhan, Librarian, Deshbandhu College, DU.
13. Dr. Vinod Kumar, Librarian, Dyal Singh College, DU.

BIS Officials

1. Ms. Yogita Ahuja, Deputy Director & Head (LSC)
2. Mr. Kishore Mandal Scientist-C/Deputy Director MSD
3. Ms. Lalita, Consultant (Standardization Activities) MSD5

**[Annex B](#bb)**

**“Guideline for Information Services for Researchers”**

**Scope:** Information services for researchers in higher education institutions. Information services include specific print and digital services required by researcher in general from information and library professionals. Researchers include scholars in PhD, Research Projects, Bachelor degrees, Master degrees, Research Supervisors and research papers writers. Higher education institutions include Universities, Colleges and research institutions.

**Researcher Needs Assessment** (Dr. P. R. Goswami)

* Creating Researcher Performa
* Understanding the Research Area (Objectives and Hypotheses)
* Identification of Research Keywords

Inputs received from Dr. P. R. Goswami

**RESEARCHERS’ NEEDS ASSESSMENT**

1. **Creating Researchers’ Performa**:

Information service provider (ISP) is required to know the following to fill in the performa:

1. academic credentials,
2. research experience (published work/projects completed)
3. work experience,
4. proficiency in languages,
5. exposure to printed and digital sources and non-conventional (or esoteric) sources of evidence
6. frequency of consultation with the research supervisor,
7. whether research grant has been received for data collection.
8. Possibility of appointing a research assistant for data collection (field data or observation based laborotary data),
9. research infrastructure in the institute/university where the researchers is affiliated.

Research has two components;

a) acquisition of information; and

b) skill to process information.

There are three different meanings of information:

i) “information as process”(intangible),

ii) ”information as knowledge”(intangible) and

iii) “information as thing”(tangible).

The first one involves skill (largely ICT skill and use of data analysis tools). Whereas the second and third ones are secured by the ISP group.

The second part of the performa would have a detailed enumeration of skills acquired by the researchers and skill auditing strategy to be adopted. Familiarity with reference management tools (e.g. Mendley) is to be mentioned.

1. **Understanding Research Area:**

A synopsis of sanctioned research proposal with the following elements is needed:

a) background of the research area enumerating “why” aspect of the proposed research, b) work done so far in the area,

c) objectives of the research,

d) hypothesis,

e) research method,

f) adjunct or overlapping topics which are closer to the subject to be investigated.

Understanding of the research area can be strenthened by perusing a reputed and relevant subject thesarus or list of specialised subject heading (e.g. *MESH*).

This would also involve identification of i) core literature on the subject; particularly core scholarly journals; ii) learned bodies/professional associations having research interest in the specific domain; iii) specialised subject classification schemes with regular revision policy (e.g. *JEL* codes for economics devised by the American Economic Association).

Revised subject thesaurus or classification schemes take care of i) fragmentation of subjects due to the emergence of new sub-disciplines and methods and ii) resultant disappearance of the core areas enumerated in the past. Universal Decimal Classification (UDC) is a popular scheme for indepth knowledge organisation. UDC is heavily weighted in the areas of science and technology. UDC consortium is responsible for a continuous revision of the scheme.

1. **Identification of Research Keywords**:

Keyword generation (KG) is the process of analysing a document (or a research article) and producing sets of one or a combination of a few words which represent its main concepts or themes. Such keywords are now used to create annotations of digital sources (e.g. research articles, books, reports, product descriptions etc.). A keyword string is a ‘linked’ version of several keywords (separated by commas or semi-colons) attached to one document.

For identifying research material, ISP are required to generate suitable keywords which best represent the researchers’ topic. The need to process large number of documents to generate suitable keywords motivated LIS professionals to undertake research in automatic KG.

This method is known as extractive KG. But it suffers from a deficiency;- i e. its inability to produce ‘absent’ keywords or keywords not appearing in the source text. To counter this, text summarisation (TS) has been adopted. It has encouraged ISP to crawl the web to produce large text corpora of various types. The web material consist of metadata of research articles (titles, abstracts, keywords etc.). They are easily found and their access is not restricted.

For better results, ISP are expected to use a combination of extractive and abstractive method for keyword generation after examining the research area. A face to face discussion with the researcher would be helpful.

1. General Remarks:

The procedure adopted for researchers’ need assessment is likely to vary from discipline to discipline due to difference in the nature of concepts used.

Natural scientists use semantic and mathematical concepts which are universally accepted. Whereas social scientists rely on constructs referring to behaviour of individuals and groups and their psychological features. There is terminological imbalance in the vocabulary used in the social sciences.

Research in natural sciences is a ‘brick laying’ process. Each new development is built upon previous findings. In social sciences, researchers use literature to communicate with other experts in order to interpret, evaluate or analyse their work. Information flow and communication as well as structure of knowledge in social sciences is different from that of sciences. This factor has to be considered while assessing researchers’ needs.

**Research Information Literacy** (Dr. Rajesh Singh)

* Understanding Print and Digital Resources
* Login and Retrieval from Online Databases (Bibliographic, Citation and Full-text DBs)
* AI Tools in Research
* Research Grants (National and International)
* INFLIBNET Shodhganga

**Research Ethics** (Ms. Yogita Ahuja )

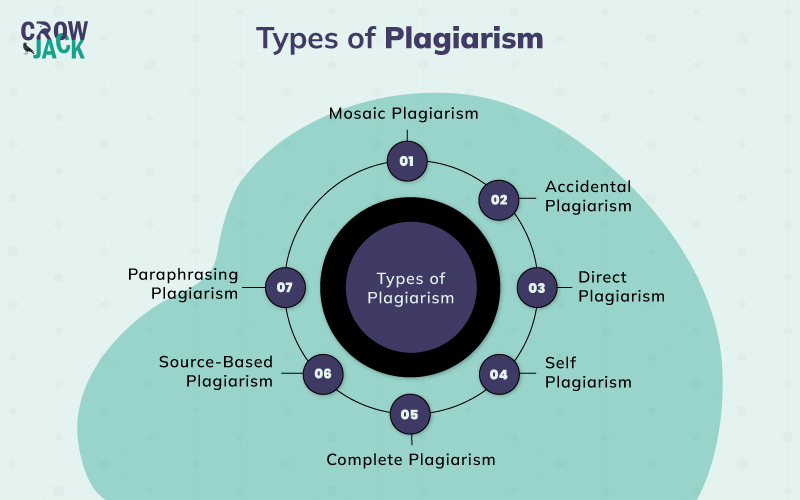
* Research Ethics Practice
* Understanding Plagiarism and its Tools

Inputs received from Ms. Yogita Ahuja

1. **RESEARCH ETHICS PRACTICES**

Research ethics practices in the context of guidelines for information services for researchers are essential to ensuring that research activities are conducted with integrity, respect for participants, and in compliance with legal and professional standards. These practices safeguard the ethical use of information, ensuring that researchers have access to quality data and resources while maintaining the highest standards of academic and professional integrity. Below are key ethical practices and guidelines for information services:

* Ensuring Accuracy and Credibility of Information
* Respecting Intellectual Property and Copyright
* Transparency in Data Use and Source Attribution
* Ensuring Privacy and Confidentiality
* Promoting Open Access and Equity in Information Access
* Supporting Informed Consent and Ethical Data Use
* Minimizing Bias in Data and Resources
* Training and Education on Research Ethics
* Monitoring and Accountability

1. **PLAGIARISM AND ITS TYPES**

Plagiarism is the act of using someone else's work, ideas, or intellectual property without proper attribution, presenting it as one's own. It can occur in various forms, including copying text, reusing images, or even paraphrasing without citation. Plagiarism is considered a serious ethical violation in academic and professional settings because it undermines the integrity of research, disrespects the original creator's rights, and hinders the advancement of knowledge.

**2.1 Types of plagiarism**

* **Unintentional Plagiarism**
* Paraphrasing poorly
* Quoting poorly
* Citing poorly
* **Intentional Plagiarism**
* Cutting and pasting
* Without giving credit

**2.2 Common forms of plagiarism include**:

* **Direct Plagiarism**: Copying text or ideas word-for-word without citation.
* **Self-Plagiarism**: Reusing one’s own previously published work without acknowledgment.
* **Mosaic Plagiarism**: Incorporating phrases or ideas from many sources without citation, often with slight alterations.
* **Accidental Plagiarism**: Unintentional failure to cite sources properly, often due to lack of knowledge or careless mistakes.

**2.3 Plagiarism Detection Tools**

Plagiarism detection tools help identify instances of plagiarism by comparing submitted content with vast databases of academic papers, articles, books, and other sources. These tools are essential for maintaining academic integrity, especially in institutions and publishing.

Common plagiarism detection tools include:

* Turnitin: One of the most widely used tools, which checks papers against a vast database of academic works, internet content, and student papers.
* Grammarly: Known for its grammar and writing assistance, Grammarly also includes a plagiarism checker that scans content against web sources.
* Copyscape: A tool primarily used for checking online content, including articles, blogs, and websites, for instances of plagiarism.
* Plagscan: Another popular tool that compares documents against an extensive database of academic articles and other online content.
* Quetext: Offers plagiarism detection with detailed reports, showing matching text and providing sources for verification.

By using these tools, researchers and writers can ensure that their work is original and properly cited, thereby avoiding plagiarism and maintaining ethical standards.

**2.4 How to avoid plagiarism?**

* For short quotes, use quotation marks in the sentence.
* For longer quotes indent the entire passage
* If you have used a table, chart, diagram etc., cite the source directly below with a statement that permission has been obtained.
* All sources should be disclosed and, if large amounts of other people’s written or illustrative material are to be used, permission must be sought.

**References**:

1. UGC (Promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions) Regulations, 2018.
2. Image Source: Google Images

**Literature Review** (Dr. Manoj K. Joshi)

* Identification of Resources (Print and Digital Resources)
* Identification of Published Papers
* Mapping of Literature
* Identification of Research Gaps
* Preparation of Bibliography with Abstracts
* Preparation of Draft Review
* Providing Full-text Documents

**Reference to Data Analytic Tools** (Dr. Neeraj K. Chaurasia.)

* Bibliometric Data Analysis on the Research Topic (National and International Groups)
* Research Data Analysis Software
* Data Visualization Softwares

Inputs received from Dr. Neeraj Chaurasia

**REFERENCE TO DATA ANALYTIC TOOLS**

Researchers can efficiently process, analyze, and visualize large datasets with the help of data analysis tools. These technologies make it easier to find correlations, patterns, and trends that human analysis could miss. By lowering human error, they improve accuracy and enable hypothesis testing, predictive modeling, and evidence-based decision-making. Platforms like Tableau and Power BI streamline data visualization, while tools like Python, R, and Excel provide flexibility. Additionally, by facilitating data sharing and integration across disciplines, data analytic tools promote cooperation, encourage reproducibility, and save time, enabling researchers to generate innovative ideas and significant findings.

Library can play an important role in supporting researchers with data analysis tools. They advise on which tools, such as statistical software, visualization platforms, or coding environments, are best suited to specific research objectives. Librarians provide training workshops, tutorials, and one-on-one assistance to help researchers improve their skills in using these technologies efficiently. They also assist in the identification and curation of high-quality datasets, guaranteeing correct citation and ethical use. Libraries can also help researchers get useful insights from their data by encouraging cooperation and remaining up to date on innovative techniques. Following are some of the Bibliometric Data Analysis Tools/Research Data Analysis Software/Data Visualization Software used by the researcher at different level of their research :

**1. Bibliometric Data Analysis Tools**

Bibliometric analysis helps assess the scope, impact, and trends in research. Researchers can investigate publishing trends, citation networks, and academic impact with the use of bibliometric data analysis tools. CiteSpace, which finds new trends and research hotspots, and VOSviewer, which visualizes co-authorship, co-citation, and keyword maps, are well-liked programs. Comprehensive bibliometric workflows are offered by R-based Bibliometrix, whilst integrated analytics for indexed literature are provided by Web of Science and Scopus. Complex networks can be visualized with the use of tools like Gephi, while bibliometric packages in RStudio enable specific studies. By recognizing significant studies, partnerships, and intellectual frameworks, these tools help researchers better grasp the dynamics of their domains and maximize their contributions.

**2. Research Data Analysis Software**

Research data analysis software allows researchers to organize, analyze, and visualize data from a variety of domains. Popular statistical analysis software includes SPSS, SAS, and Stata; R and Python for advanced programming-based analysis; and NVivo or Atlas.ti for qualitative data. These tools make it easier to examine massive datasets, discover trends, and form useful conclusions. Selection is based on research needs, data type, and expertise, allowing for comprehensive analysis in academia, social sciences, and healthcare, among other areas.

**3. Data Visualization Software**

Data visualization software is essential for academics as it converts intricate data into intuitive visual formats, facilitating expedited insights and enhanced comprehension. It facilitates the identification of trends, patterns, and outliers that may be neglected in raw data, hence improving decision-making and hypothesis formulation. Efficient visualization technologies enhance the communication of findings, rendering conclusions accessible to varied audiences, including non-experts. They also optimize data analysis procedures, save time and enhancing productivity. Advanced visualization tools such as Tableau, Power BI, D3.js and ggplot2 (R) provide powerful data insights. Selection is based on research needs, data type, and expertise, allowing for comprehensive analysis in academia, social sciences, and healthcare, among other areas.

**Research Writing** (Dr. Shalender Singh Chauhan)

* Research Presentation (Thesis and Paper)
* AI Adoption
* Reference Styles
* Research Support Tools

**Publication of Research** (Dr. Manoj Joshi , Dr. RK Verma & Dr. Vinod Kumar)

* Generate Content Similarity Report
* Identification of Relevant Research Journals for Publication (Open and Subscription Journals)
* Creation of Researcher ID
* Data Sharing on Digital Repositories

**Research Visibility and Profile of Researcher** (Dr. Babita Gaur)

* Social Media Research Apps to promote research
* Membership and Upload to INFLIBNET Vidwan
* Citation Profile of Researcher (Citation Count for Research Papers)
* Researcher Citation Index

Inputs received from Dr. Babita Gaur

**RESEARCH VISIBILITY AND PROFILE OF RESEARCHERS**

Research Visibility and Profile of Researchers’ Visibility in academics is an important factor for scholars' purposes where they want to grow and show their influence among the academic community. Visibility, with a scientist's output, refers to the recognition and communication of research views and outputs by the general populace and scientific community. Such trends are changing researchers’ exposure to their works as more and more of them can publish in journals and use other means of mass media, including social networks, websites, and open-access resources.

Developing a profile is another relevant area where the researcher’s visibility again can be strongly shown to the academicians. Websites such as Google Scholar, ResearchGate, or institutional repositories allow researchers to boost significantly their online presence. Such profiles often include a detailed list of the author's publications, citations, impact metrics, and measurable contributions to the field. Also, researchers who keep their profiles up-to-date may improve their prospects for collaborations, funds, and conference invitations too.

Moreover, engaging and integrating offline and online networking can contribute to a researcher’s visibility. Besides exhibiting their work, researchers may interface with their peers and potential partners by participating in academic events like conferences, webinars, and seminars. Social media platforms such as LinkedIn or Twitter (X) allow researchers to reach broader circles, share their opinions, and discuss the current developments in their fields.

The importance of such indicators, such as, altmetrics and h-indices, cannot be overstated. These indices are derived from social networks as the number of times the work has been cited, can provide a quantitative approach for the analysis of a scholar. Altmetrics with broader outreach of the research means the amount of attention made towards the article outside its scientific context, which speaks of its significance to society. On the other hand, typical citation metrics are more concerned with analytical needs and the intellectual value of published output.

For effective management of research profiles and participation in the relevant academic networks RV and PV are the key elements for those researchers who wish to promote their work and create new partnerships in an increasingly interconnected academic world.

**Social media research apps to promote research**

Research communication has embraced the use of social media and social networking sites as relatively new yet important tools for furthering research and promoting scholarship. Many scholars are now able to share their papers and engage in broader outreach via websites like ResearchGate, Academia.edu, and Mendeley. The websites further facilitate collaboration by linking researchers grouped according to similar interests with other professionals who can help in the realization of significant projects. Additionally, sites such as Twitter is a tool that allows researchers to connect with an audience by sharing their published work and joining conversations using academic hashtags to boost their visibility. Mendeley is not just a reference manager; it also serves as a platform for researchers to connect and share their work while keeping tabs of how many times their publications are being read by others. LinkedIn being the largest professional network offers researchers a platform where they can share their publications, write articles, and get connected with fellow scholars and even industry practitioners. LinkedIn and Twitter enable professionals to participate in relevant conversations, share ideas, and present research results. Such participation and activities also help the researcher exceed the reach of most other scientists by participating in trends and using phrases. In addition, such services also provide researchers with figures that allow them to track audience engagement and better understand their target group.

To sum up, making use of social media research applications is very important for contemporary researchers who wish to increase their visibility and promote their research works effectively.

**Membership and upload to INFLIBNET Vidwan**

To become members and post their study on the INFLIBNET Vidwan and be a member, the researchers need to register on the INFLIBNET website first. As a means of fostering academic camaraderie and communication, Vidwan is an authentic database that profiles Indian researchers. After registration, the users can create their profiles by filling out their publications, research area, and educational background among others. All their academic scholarly endeavours are adequately captured in this profile.

After such registration, researchers can enhance their academic profile by uploading their publications such as journal articles, theses, conference papers or any other types of academic works. Furthermore, it is also possible to change and improve profiles with new and relevant research as primary data in the platform is always current. Apart from enabling scholars to present their work, INFLIBNET Vidwan also connects scholars to people in related fields. INFLIBNET Vidwan not only aids in the presentation of the work to the researchers but also gets them in contact with other researchers working in the same area within different institutions in India thereby encouraging collaboration.

**Citation profile of researchers (citation count for research papers)**

Citation profile (with citation counts) of academics, and their research publications is one important part of academic evaluation and effect measurement. Citation counts indicate how often a researcher's work is cited by others and are indicative of the degree to which his or her contributions have been impactful for the academic community. Tools for tracking citation metrics from Google Scholar, Scopus, and Web of Science allow researchers to track their citations over time. Many citations can bring a researcher's profile and boost image, which can then translate into increased funding opportunities, partnerships, and conference speaking invitations. Another valuable information that citation analysis can gather is the top researchers in a domain and the pattern of research influence across sectors. It is also essential to note that citation counts vary massively between subfields due to differences in publication practices. Citations are useful for measuring academic success; however, they should be considered concerning the specific subject under investigation.

**Researcher citation index**

A Researcher Citation Index combines various metrics to provide an overall picture of the academic impact of a researcher. Such an index is commonly used to assess Research Impact which measures the reach and influence of a scholar's work. Citation indexes can be used by institutions and funding agencies to evaluate the impact on faculty members. For career advancement too, Citation indexes are quite important for academic promotion, grants, and job applications. Citation indices enable comparisons between researchers in similar fields. This can be helpful for departments and universities to assess their research output against global standards. Maintaining a strong citation index requires ongoing attention to publishing quality research, engaging with academic communities, and keeping track of research metrics.

These metrics can be found on sites such as Web of Science, Scopus, or Google Scholar. These indices can include a variety of metrics such as total citations, h-index, and i10-index, which help assess the importance of a researcher's publications. These metrics are essential for assessing the academic success and impact of a particular field in order to identify funding opportunities and collaboration prospects. When researchers look for more specific information about citation indexes, they often turn directly to these scholarly resources.