

First Forays Into Research—A Seminar by RSM and thrustMIT

Research at an undergraduate level is an exciting and interesting prospect for many students, something MIT has always emphasized. To guide students interested in research activities at MIT, the Research Society of Manipal collaborated with thrustMIT for a walkthrough of how UG research works, with a detailed look at writing a research paper and publishing it. *“The seminar was to guide students who want to pursue research after their four years at MIT. We wanted to educate all attendees about the scientific method of research and how to think like a researcher, along with everything that goes into publishing research”* said Shuba Murthy, the General Secretary at RSM.

The seminar was divided into four parts, each covered by one of the speakers.



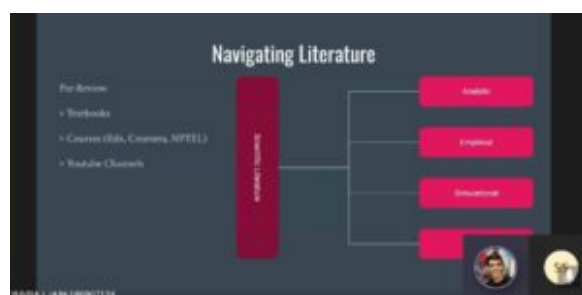
The seminar begins. *Credits:*
Shushant Shekhar

Stage 1: Searching for Research Material, Pre-Review, and the Methods of Research

Yuvraaj Jain, a 3rd year ECE undergrad and the Head of Payload at thrustMIT, started with the importance of efficiency in scouring the internet for research purposes, with effective niche searching. Krithika's demonstration of narrowing down

search parameters while scouring the internet for research papers on particular topics followed. Yuvraaj then addressed a crucial aspect of research, known as the formative question: the research topic's prime driver. Taking the example of a vaccine for Covid-19, he went on to show how a research purpose dictates the actions of the researcher and how they should be focused on the formative question.

A special highlight of this seminar was the amount of quality online resources being introduced to the attendees. Websites like [Scihub](https://scihub.is) and [Libgen](https://libgen.is) were shown as important websites for accessing papers and textbooks. filecr.com and www.getintopc.com are websites where one can get simulative software. With the pre-review stage completed, a sufficient amount of knowledge for research paper reading and literature reviewing in the particular field would be obtained. Yuvraaj then discussed the methods of research. Two methods were discussed in detail: The Scientific Method and The Engineering Method. Yuvraaj gave insights into the actual research process and experiments and closed his talk by discussing what the research results mean and how their statistical interpretations must be taken.



Navigating research literature and resources. *Credits: Shushant Shekhar*

Stage 2: To Publish a Research Paper

The General Secretary of RSM, Shuba Murthy, an aeronautical

undergrad, then continued the presentation talking about publishing the research materials and findings after it's complete. She began by suggesting how to gauge the results' worth first and knowing where the research work stands. She explained different research publication types such as original research, review articles, case studies, and letters, along with a word of caution regarding the journal's validity in which the paper would be published. A researcher must know the reliability of the journal and the working processes of its review committee. Thus investigating the journal and its credibility is critical. The scientific journal, [Elsevier](#), is an example. Finally, the attendees were taught a simple three-step method of THINK, CHECK and SUBMIT to validate and think about their research publication.



The three-step method, as explained by Shuba Murthy. *Credits: Shushant Shekhar*

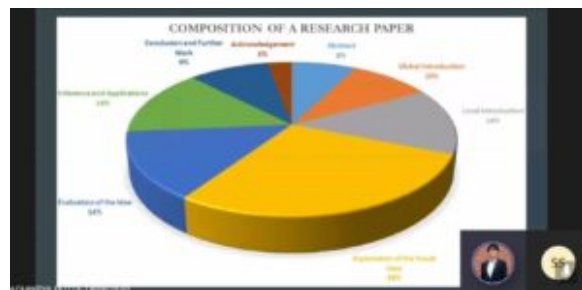
Stage 3: Writing a Paper

Achintya Dutta, the co-president of RSM, a 3rd year ECE student, then took up the integral topic of writing a research paper. He started with an emphasis on why research papers follow a strict format for documentation and posterity. He then mentioned the importance of the abstract of a research paper. An abstract summarizes, usually in one paragraph, the major aspects of the entire paper in a prescribed sequence that includes the study's overall purpose, the major findings, and a summary of the conclusions drawn. He spoke on how the

submission abstract is the basis on which research papers get selected to be published in top journals and conferences and explained the composition of research papers. He broke a research paper down into its major components and analyzed each one in-depth with a pie chart, and many useful suggestions and tips regarding the writing of a paper, such as:

- Not to make bold statements.
- Use technical jargon.
- Avoiding informal language, and most importantly
- Focusing on clearly conveying the novelty of the research paper

He ended his presentation with a note on plagiarism checks and how various resources are available for this purpose. He also showed the acceptable plagiarism percentages for journals and conferences.



Achintya breaks down the components of a research paper. *Credits: Shushant Shekhar*

Stage 4: Publishing Your Research in a Journal/Conference

Ankita Ghosh, a 3rd year CSE student and the technical head of RSM, then continued the presentation, giving suggestions regarding how to choose the correct journals to publish in, using resources like [SCOPUS](#), [Springer](#), and [Google Scholar](#). She

mentioned the importance of citations in detail and showed the citation H-Life of some journals by visiting *SCOPUS* and [Scimago](#). If a publication's cited half-life is 4.6, this means that half the citations it earned were to items published 4.6 or fewer years ago, while half were to items published longer ago than that. The impact factor of a journal and quartile rankings of journals are important aspects of research publications. Journals worldwide are classified into 4 quartiles, with quartile 1 journals being the elite ones and quartile 4 ones being below mediocre. A journal can publish research concerning interdisciplinary fields in its editions, with many conferences covering many papers from across STEM fields. The session ended on a practical note by looking up the details and merits of a *Microsystem Technologies* journal on *SCOPUS*.

Team RSM and thrustMIT were very active in answering all queries in the live chat. The response to the session was very positive, with many attendees looking forward to RSM's recruitment.

"The seminar gave me a great overview of UG research. They explained the process of searching for research papers relevant to our interests online, getting ideas for research, testing our results, and publishing our papers in journals. Thanks a lot to the Research Society of Manipal and thrustMIT," said Sudarshan Sivakumar, a second-year IT student at MIT.

The seminar lasted nearly two hours and covered the entire research process in detail. The seminar gave a fresh perspective for all students willing to start with research once they get back to campus after a long haul. It provided the attendees with the right amount of resources to decide on their research topics before they start with the same in college.

Featured Image credits: RSM and thrustMIT, Pranav Viju