GOVERNMENT ENGINEERING COLLEGE, DAHOD

Affiliated to Gujarat Technological University (GTU)

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

SEMINAR REPORT

on the Expert Session

THE ART OF RESEARCH PAPER WRITING



Expert session in progress at the EC Department, GEC Dahod

Resource Person	Dr. Ishak Sheikh, Assistant Professor, Electrical Engineering Department, GEC Dahod
Organised by	Research & Innovation Club, EC Department, GEC Dahod
Programme	B.E. Electronics & Communication Engineering, Semester V
Academic Year	2026 - 27

1. INTRODUCTION

A seminar on **"The Art of Research Paper Writing"** was organised in the Electronics & Communication (EC) Department of Government Engineering College (GEC), Dahod, by the Research & Innovation Club. The session was meant for the students of Semesters 1, 3, 5 and 7, and its main aim was to develop an interest in research among students and to introduce them to the proper method of research writing. The seminar studied the anatomy (structure) of a research paper part by part, explaining the purpose of each section.

The expert speaker, **Dr. Ishak Sheikh** (Assistant Professor, Electrical Engineering Department, GEC Dahod), explained the entire topic with the help of presentation slides displayed on the smart display. The programme was conducted under the guidance of Principal Dr. K. B. Judal and HOD Dr. B. M. Parmar.

Particular	Details
Seminar Title	The Art of Research Paper Writing
Resource Person	Dr. Ishak Sheikh, Assistant Professor, GEC Dahod
Venue	EC Department, Government Engineering College, Dahod
Organised by	Research & Innovation Club, EC Department
Participants	EC students of Semesters 1, 3, 5 & 7 and faculty members
Guidance	Dr. K. B. Judal (Principal), Dr. B. M. Parmar (HOD, EC)
Coordinators	Prof. S. N. Damor, Prof. Ashish Pasaya

2. WELCOME AND FELICITATION

The programme began with a warm welcome of the resource person. **Dr. Ishak Sheikh** was welcomed with a bouquet and honoured by **Dr. B. M. Parmar**, Head of the EC Department, and by **Prof. S. N. Damor**. This gesture of respect set a cordial and academic tone for the session, after which the students and faculty members settled down for the talk.



Fig. 1(a): Welcome of the speaker with a bouquet



Fig. 1(b): Felicitation of the speaker by faculty



Fig. 2: Start of the seminar with the title slide on the display

3. TOPIC-WISE SUMMARY OF THE SESSION

3.1 What is a Research Paper?

- A research paper is far more than a simple summary of gathered information. It is valid, original participation in an ongoing academic conversation.
- While writing a research paper, one analyses a perspective, argues a specific point, or solves a problem using evidence.
- A well-structured paper helps readers follow the flow of ideas and improves the clarity and coherence of the content. By organising information into sections, paragraphs and sentences, researchers present their thoughts logically and systematically, giving the reader a coherent and engaging experience.

3.2 Common Misconceptions

The speaker cleared three common myths that stop beginners from writing:

Myth	Fact
"I need to discover something totally new."	Most research builds incrementally on existing work. A unique angle on existing data is enough.
"It must be complex to be smart."	Complexity often masks confusion. The best papers are simple, clear and direct; if you cannot explain it simply, you do not understand it well enough.
"I save the best point for last."	Academic writing is not a mystery novel. State the main argument (thesis) immediately in the introduction.

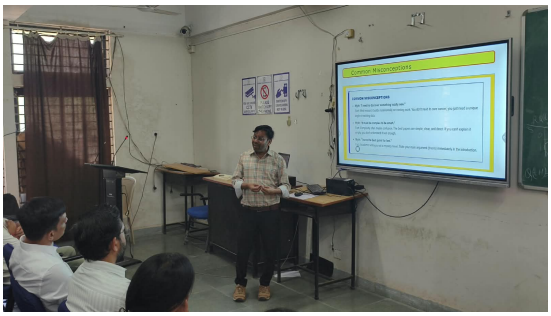

Fig. 3: Dr. Ishak Sheikh explaining the common misconceptions



Fig. 4: Explaining the "Anatomy of a Research Paper" diagram

3.3 Anatomy and Structure of a Research Paper

The paper was compared with the human body (and also with a fish skeleton, the *Fish Model*), where every section has a clear role and answers one question for the reader:

Section	Question it answers
Abstract	Problem statement, method overview, key findings and main impact
Introduction	What is known? (our world understanding)
Literature Review	What is unknown? What is the gap we want to fill?
Methodology	How should we fill the gap? What did you do?
Results	What findings did you get?
Discussion	How do the findings bridge the gap?
Conclusion	What does this mean for us going forward?
References	Existing knowledge on which the work is built

The structure is also seen as an hourglass: a title page, abstract and introduction narrow the reader from the broad area to the specific problem, the methodology is the narrow centre, and the findings, discussion and conclusion widen again to the meaning of the work.

3.4 Title and Abstract: The Initial Impression

The title and abstract are the first things a reader meets. The **title** should be concise, informative and should capture the essence of the study. The **abstract** gives a brief overview of the research problem, methodology and findings, and tempts the reader to go deeper. An informative abstract covers four key areas:

Component	What it should state
1. Purpose / Problem	The research question or problem being addressed and why it is important
2. Methods	Approach used, such as experiments, surveys, interviews or literature review
3. Results	Most important findings with specific data, figures or key outcomes, not only general trends
4. Conclusion / Significance	What the results mean and the implications or applications of the work

As a synopsis of the paper, the abstract flows as **Introduction** (background and importance of the problem in 2-3 sentences), **Purpose** (1-2 sentences on why the study was done), **Approach** (type of study, variables, extent of work and important sources), **Results** (concrete yield, with the most important data and statistics) and **Conclusions** (summing up the findings, then the implications).

3.5 Introduction: Setting the Stage

The introduction contains eight elements: background, problem statement, existing work and its limitation, research gap, contribution, method overview, key results and the structure of the paper. A sentence-wise guide was given to build it:

Sentences	Content
1 - 2	Introduce the topic (broad context)
3 - 4	Narrow down to the specific problem
5 - 6	Existing work (brief)
7 - 8	Research gap
9 - 10	Proposed solution / contribution
11 - 12	Method overview
13 - 14	Key outcome (optional but strong)
15 onwards	Paper organisation

The introduction is linked with every other component: the literature review, methodology, findings, discussion and conclusion keep returning to the problem and promise stated in it. Hence the introduction should be written so that the rest of the paper clearly delivers what it promises.



Fig. 5: Explaining the structure of a research paper



Fig. 6: Dr. Ishak Sheikh addressing the audience

3.6 Literature Review to References

The remaining sections of the paper were explained one by one, as summarised below:

Section	Key points explained by the speaker
Literature Review: Building the Foundation	Shows the researcher's understanding of existing knowledge. Relevant articles, books and other sources are reviewed and analysed to find gaps and establish the need for the study. Key findings of earlier studies are summarised, areas of disagreement are identified and limitations of existing research are highlighted.
Methodology: Detailing the Process	Explains the research design and the techniques used to collect information. Includes the research strategy and setting, the design (quantitative, qualitative or mixed), the population, sampling strategy, study variables, data collection instruments and procedures, analysis methods, reliability and validity measures, and the technical and administrative limitations.
Results: Presentation of Findings	Presents the findings with respect to the central research question, in the same sequence as the methods or in a logical (often time-line) order. Written in the past tense. Tables and graphs are used for large data, and the same information is not repeated in the paragraph.
Discussion: Interpreting the Results	Starts from the research question and answers it without drawing conclusions yet. Results are compared with current literature, conflicting literature is discussed with reasons, and the strengths, limitations, generalisability, problems faced in the methods and unanswered questions are listed.
Conclusion: Wrapping It Up	Summarises the whole work, gives conclusions on each research question or hypothesis, and adds recommendations, implications and future research. It must match what the introduction promised, be in clear and simple language, and not repeat the data or the discussion.
References	A list of all resources cited in the paper. All used sources must be cited, in a standard style such as IEEE, APA, MLA or Harvard.



Fig. 7: Students and faculty attending the session



Fig. 8: Group photograph of the participants

3.7 IEEE Conference Paper Structure

Since most engineering students first write conference papers, the IEEE guidelines were also discussed:

Section	IEEE guideline
Title	Specific, concise and descriptive. Avoid unnecessary words such as "new" or "novel". Include keywords.
Abstract	A single paragraph of up to 250 words, self-contained with no abbreviations, footnotes, references or equations; highlights what is unique; has 3-5 keywords.
Introduction	Starts from the current state of research, moves to the specific topic, and ends with the exact question or hypothesis, motivation and contribution.
Methods	Detailed question, methods, definitions and equations, in enough detail for others to replicate the work.
Results and Discussion	Show results with interpretation, acknowledge limitations and do not exaggerate their importance.
Conclusion	Key findings, implications, benefits or shortcomings and future research.
Acknowledgments / References	Acknowledgments are optional; cite only those references that directly support the work.

4. AI TOOLS AND PROMPTS FOR RESEARCH

The speaker also showed how modern AI and research tools can assist (not replace) the researcher at each stage of the work:

Research Task	Useful Tools
Brainstorming	ChatGPT, Claude, Gemini
Research questions	ChatGPT, Elicit
Literature discovery	Semantic Scholar, Elicit
Literature synthesis	Elicit, NotebookLM
Citation context	Scite
Paper discovery	ResearchRabbit, Connected Papers
Academic search	Consensus
Writing improvement / Statistics	ChatGPT, Claude
Coding	ChatGPT, Claude, GitHub Copilot
Reference management	Zotero, Mendeley, EndNote

Ready-made prompts were demonstrated for choosing a research topic, framing research questions, discovering literature, expanding papers from a starting paper, identifying research gaps and comparing several papers in a table. Every prompt asks the AI to act as an experienced research mentor and, most importantly, **not to invent citations, statistics, findings or research gaps**; all AI output must be verified against real sources.

Throughout the session the students and faculty members listened attentively, took notes and followed the slides closely. The speaker connected each section of the research paper with simple examples, which made a technical topic easy to understand for students of all semesters.

5. PRESS COVERAGE

The seminar was covered by local newspapers under the headline **"Research Paper Writing Session Organised at Government Engineering College, Dahod"**. The reports mention that the speaker explained the importance of research in the academic and professional fields and motivated students to work on new ideas, develop analytical ability and move ahead in research. They also say that students were encouraged to take part actively in research activities along with their studies.



વિદ્યાર્થીઓમાં સંશોધન પ્રત્યે રુચિ કેળવવા તથા તેમને સંશોધન લેખનની પદ્ધતિથી પરિચિત કરાવવાનો હતો

સરકારી ઈજનેરી કોલેજ, દાહોદ ખાતે રિસર્ચ પેપર રાઈટિંગ સેશન યોજાયું

દાહોદ તા.૧૨

સરકારી ઈજનેરી કોલેજ, દાહોદ ખાતે ઈલેક્ટ્રોનિક્સ એન્ડ કોમ્યુનિકેશન (EC) વિભાગના સેમેસ્ટર ૧, ૩, ૫ અને ૭ના વિદ્યાર્થીઓ માટે રિસર્ચ પેપર રાઈટિંગ અંગે માર્ગદર્શન સેશનનું રુચિ કેળવવા તથા તેમને સંશોધન લેખનની પદ્ધતિથી પરિચિત કરાવવાનો હતો.

આ કાર્યક્રમમાં નિષ્ણાત વક્તા તરીકે સરકારી ઈજનેરી કોલેજ, દાહોદના સહાયક પ્રાધ્યાપક ડૉ. ઈશાક શેખને આમંત્રિત કરવામાં લેખન, સંશોધનનાં તારણોની રજૂઆત તથા ગુણવત્તાસભર રિસર્ચ પેપર તૈયાર કરવાની પ્રક્રિયા અંગે વિસ્તૃત માર્ગદર્શન આપ્યું હતું. ડૉ. ઈશાક શેખે સંશોધનનું શૈક્ષણિક અને વ્યાવસાયિક ક્ષેત્રે રહેલું મહત્ત્વ સમજાવતાં વિદ્યાર્થીઓને નવીન વિચારો પર કાર્ય કરવા, વિશ્લેષણાત્મક ક્ષમતા વિકસાવવા અને સંશોધન ક્ષેત્રે આગળ વધવા માટે પ્રેરિત કર્યા હતા. તેમણે સંશોધન પેપરને વિદ્યાર્થીઓની શૈક્ષણિક પ્રગતિ અને સંશોધનક્ષમતા વિકસાવવાનું મહત્ત્વપૂર્ણ માધ્યમ ગણાવ્યું હતું.

આ પ્રસંગે ઈલેક્ટ્રોનિક્સ એન્ડ અને વિદ્યાર્થીઓને અભ્યાસની સાથે સંશોધન પ્રવૃત્તિઓમાં પણ સક્રિય ભાગ લેવા પ્રોત્સાહિત કર્યા હતા. આ કાર્યક્રમનું સફળ આયોજન સરકારી ઈજનેરી કોલેજ, દાહોદના આચાર્ય ડૉ. કે. બી. જુડાલ તથા EC વિભાગના વડા ડૉ. બી. એમ. પરમારના માર્ગદર્શન હેઠળ રિસર્ચ એન્ડ ઈનોવેશન ક્લબ દ્વારા કરવામાં આવ્યું હતું. કાર્યક્રમના સંયોજકો તરીકે પ્રો. સંગ્રામ ડામોર અને પ્રો. આશિષ પસાયાએ જવાબદારી સંભાળી હતી. વિદ્યાર્થીઓમાં સંશોધનાત્મક અભિગમ, વૈજ્ઞાનિક દૃષ્ટિકોણ અને ટેકનિકલ

Fig. 10: Newspaper coverage of the seminar, with the group photograph of the participants

6. CONCLUSION AND LEARNING OUTCOMES

The seminar was highly informative and gave students a clear roadmap for writing a research paper. The main learning outcomes are:

- A research paper is an original contribution to an academic conversation, not just a summary.
- A good paper follows a logical structure from title and abstract to conclusion and references, and every section answers one clear question for the reader.
- The main argument should be stated early, and the writing should be simple, clear and direct.
- Standard formats such as IEEE should be followed, with all sources cited properly.
- AI and research tools can speed up the work, but facts and citations must always be verified.

7. VOTE OF THANKS

At the end of the programme, **Dr. B. M. Parmar**, Head of the EC Department, delivered the thanks speech and expressed sincere gratitude to **Dr. Ishak Sheikh** for sharing his knowledge and guiding the students on this important topic. The whole programme was held in the EC Department of Government Engineering College, Dahod. The students, faculty members and organisers also thanked the speaker for an inspiring and useful session.

THANK YOU