

Module 4 - Research Report Writing

Contents

1. Format of the Research report
2. Synopsis
3. Dissertation
4. References/Bibliography/Webliography
5. Research Proposal Preparation
6. Writing a Research Proposal and Research Report
7. Writing Research Grant Proposal.

Format of a research report

Writing a good report may take much time and effort. The most difficult task is usually the preparation of the first draft. The report should be easily understandable. This requires clarity of language, a logical presentation of facts and inferences, the use of easily understood tables and charts, and an orderly arrangement of the report as a whole. It should be no longer than is necessary.

A report usually contains the following major components.

Preliminary Pages:

Title and cover page

Abstract (Summary)

Acknowledgements

Table of contents

List of Tables

List of Figures

List of abbreviations

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

Chapters

I) Introduction

II) Objectives

III) Methods

IV) Results

VI) Conclusions and recommendations

VII) References

VIII) Annexes or appendices

Title and cover page

The title should be clear, precise and informative but not too long.

The cover page should contain

1. the title,
2. the names of the authors with their titles and designations,
3. the institution that is publishing the report,
4. the month and year of publication.

Abstract (Summary)

The summary should be brief and informative. A reader who has been attracted by the title will usually look at the summary to decide whether the report is worth reading.

The summary should be written only *after* the first or even the second draft of the report has been completed. It should contain:

- a very brief description of the problem (WHY this study was needed)
- the main objectives (WHAT has been studied)
- the place of study (WHERE)
- the type of study and methods used (HOW)
- major findings and conclusions, followed by
- the major (or all) recommendations.

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

The summary will be the first part of your study that will be read. Therefore, its writing is time consuming.

Acknowledgements

It is good practice to thank those who supported you technically or financially in the design and implementation of your study.

Also your employer who has allowed you to invest time in the study and the respondents may be acknowledged.

Acknowledgements are usually placed right after the title page or at the end of the report, before the references.

Table of contents

A table of contents is essential. It provides the reader a quick overview of the major sections of your report, with page references, so that the reader can go through the report in a different order or skip certain sections.

List of Tables

The list of Tables must contain the details of all the Tables in the Report ie. Table Number, Table Title and Page number.

List of Figures

The list of Figures must contain the details of all the Figures in the Report ie. Figure Number, Figure Title and Page number.

List of abbreviations (optional)

If abbreviations are used in the report, these should be stated in full in the text the first time they are mentioned.

The Abbreviations with their expansions should be listed in alphabetical order.

The list can be placed before the first chapter of the report.

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

The table of contents and lists of tables, figures, abbreviations should be prepared last, as only then can you include the page numbers of all chapters and sub-sections in the table of contents.

Chapters

I) Introduction

The introduction is a relatively easy part of the report that can best be written after a first draft of the findings has been made. It should certainly contain some relevant (environmental/ administrative/ economic/ social) background data related to the problem that has been studied.

Then the statement of the problem should follow, again revised from your research proposal with additional comments and relevant literature (literature study) collected during the implementation of the study. It should contain a paragraph on what you hope to achieve with the results of the study.

You can also introduce theoretical concepts or models that you have used in the analysis of your data in a separate section after the statement of the problem.

II) Objectives

The general and specific objectives should be included as stated in the proposal. If you have not been able to meet some of the objectives this should be stated in the methodology section and in the discussion of the findings.

The objectives determine the methodology you chose and will determine how you structure the reporting of your findings.

III) Methods

The methodology you followed for the collection of your data should be described in detail.

The methodology section should include a description of:

- the study type
- major study themes or variables
- the study population(s), sampling method(s) and the size of the sample(s)

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

- data-collection techniques used for the different study populations
- how the data were collected and by whom
- procedures used for data analysis, including statistical tests (if applicable).

If you have deviated from the original study design presented in your research proposal, you should explain to what extent you did so and why.

The consequences of this deviation for meeting certain objectives of your study should be indicated.

If the quality of some of the data is weak, resulting in possible biases, this should be described as well under the heading 'limitations of the study'.

IV) Results

Findings should be presented

Tables and graphs could be used (should be well titled and captioned)

The tables should be well constructed, and without anomalies

Graphs should clarify and not complicate the problem

If appropriate statistical tests are used, the results should be included.

Confidence intervals and the type of tests used should be indicated.

* Confidence interval means a range of values so defined that there is a specified probability that the value of a parameter lies within it.

V) Discussion

The findings should be discussed by objective or by the related variables or themes, which should lead to conclusions and possible recommendations.

The author interprets the findings. Care should be taken not to introduce new findings, i.e., findings not mentioned in the result section.

The discussion may include findings from other related studies that support or contradict your own. Limitation of the study and generalizability of the finding should also be mentioned.

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

VI) Conclusions and recommendations

The conclusions and future scope should follow logically from the discussion of the findings. Conclusions can be short, as they have already been elaborately discussed in chapter 5. As the discussion will follow the sequence in which the findings have been presented (which in turn depends on your objectives) the conclusions should logically follow the same order.

VII) References

The references in your text can be numbered in the sequence in which they appear in the report and then listed in this order in the list of references.

Referencing can be described as giving credit, with citation, to the source of information used in one's work. Research is a buildup on what other people have previously done thus referencing helps to relate your own work to previous work. Unacknowledged use and presenting someone else's ideas as if they were your own can be used to describe plagiarism.

Referencing is important for a number of reasons, some of which include:

- It allows for acknowledgement of the use of other people's opinions, ideas, theories and inventions.
- Helps readers understand what influenced the writer's thinking and how their ideas were formulated.
- Helps the readers evaluate the extent of the writer's reading.
- Enables readers to visit source materials for themselves and verify the information.

VIII) Annexes or appendices

The annexes should contain any additional information needed to enable professionals to follow your research procedures and data analysis.

Information that would be useful to special categories of readers but is not of interest to the average reader can be included in annexes as well.

Examples of information that can be presented in annexes are:

- tables referred to in the text but not included in order to keep the report short;
- questionnaires or checklists used for data collection.

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

Research Synopsis

A research synopsis is a short outline of what your research thesis is and all the steps you propose to follow in order to achieve them.

It gives you and your supervisor a clear view of what the research aims at achieving and within what time frame.

It also helps you stay focused and makes the research work generally less tedious.

Therefore synopsis should be clear, systematic and unambiguous.

The format for writing a synopsis varies from institution to institution and among disciplines. The outline of research synopsis should contain:

Background

Theoretical Framework/Methodology/Conceptual Framework

Research Questions

Hypothesis

Objectives of the study

Literature Review

Limitations

References

- **Background:** This should lead down from the area of study to the specific research topic.

The importance of the proposed research work should be discussed.

The academic gap which the research would fill which will lead to your research problem should be discussed.

- **Methodology:**

Methodology indicates the methods of data gathering and analysis which can be quantitative and/or qualitative and explains the major concepts that the research revolves round on.

- **Research Questions:** These are the questions that will propel the research work and give it more focus along the line.

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

- **Hypothesis:** The assumption on which the research work is built is mentioned. This assumption might be proved true or false at the end of the research.

- **Objectives of the study:** this highlights what the research aims at achieving.

The objectives should be at least four or five.

For example:

To study and analyze

To design the concepts

To identify the concepts

To improve

To design and develop a....

- **Literature Review:** This contains a mention of other research works done in the area of research. Literature review shows that the proposed research topic hasn't been done before.
 - a. Familiarizes the reader to the problem under study.
 - b. It describes the work done by others either at local or international level on it or similar subject.
 - c. It helps the researcher to understand the difficulties faced by others and the corrective steps taken or modifications made by them.
 - d. Research methodology of the researcher can be structured and modified after reviewing the literature.
 - e. The review assists in identifying various variables in the research project and conceptualizes their relationship.
 - f. Review of literature in a synopsis helps the reviewer in assessing the knowledge of the researcher.

- **Limitations:** The challenging factors or drawbacks of the current research should be mentioned.
- **References:** This section should contain the major texts upon which the research is built.

Research Dissertation

How to structure a dissertation?

A dissertation or thesis is a long piece of academic writing based on original research, submitted as part of a doctoral, master's, or bachelor's degree.

It should include:

1. **Title page**
2. **Acknowledgements**
3. **Abstract**
4. **Table of Contents**
5. **List of Figures and Tables**
6. **List of Abbreviations**
7. **Glossary**
8. **Introduction**
9. **Literature review**
10. **Methodology**
11. **Results**
12. **Discussion**
13. **Conclusion**
14. **Reference list**
15. **Appendices**
16. **Editing and proofreading**

Title page

The very first page of your document contains your dissertation's title, your name, department, institution, degree program, and submission date.

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

Sometimes it also includes your student number, your supervisor's name, and the university's logo.

Many programs have strict requirements for formatting the dissertation title page.

Acknowledgements

The acknowledgements section is a space for you to thank everyone who helped you in writing your dissertation.

This might include your supervisors, participants in your research, and friends or family who supported you.

Abstract

The abstract is a short summary of your dissertation, usually about 150-300 words long.

You should write it at the very end, when you've completed the rest of the dissertation. In the abstract, make sure to:

- State the main topic and aims of your research
- Describe the methods you used
- Summarize the main results
- State your conclusions

Although the abstract is very short, it's the first part (and sometimes the only part) of your dissertation that people will read, so it's important that you get it right.

Table of Contents

In the table of contents, list all the chapters and subheadings and their page numbers. The dissertation contents page gives the reader an overview of the structure and helps easily navigate the document.

All parts of the dissertation should be included in the table of contents, including the appendices.

Table of contents can be automatically generated in Word using Table of Contents feature.

List of Figures and Tables

The tables and figures in the dissertation should be itemized in a numbered list.

List of Figures and Tables can be automatically generated using the Insert Caption feature in Word.

List of Abbreviations

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

The abbreviations in the dissertation can be included as an alphabetized list so that the reader can easily look up their meanings.

Glossary

If there are a lot of highly specialized terms that will not be familiar to the reader, they can be included in the glossary.

The terms should be listed alphabetically and explained briefly.

Introduction

The introduction should:

- Establish the research topic, giving necessary background information
- Narrow down the focus and define the scope of the research
- Discuss the state of existing research on the topic, showing its relevance to a broader problem
- Clearly state the research questions and objectives
- Give an overview of the dissertation's structure

Literature review

Before starting the research, a literature review should be conducted to gain a thorough understanding of the academic work that already exists on the topic.

This means:

- Collecting sources (e.g. books and journal articles) and selecting the most relevant ones
- Critically evaluating and analyzing each source
- Drawing connections between them (e.g. themes, patterns, conflicts, gaps) to make an overall point

In the dissertation literature review chapter or section, one shouldn't just summarize existing studies, but develop a coherent structure and argument that leads to a clear basis or justification for the current research.

Literature Review aims to show how the research:

- Addresses a gap in the literature
- Takes a new theoretical or methodological approach to the topic
- Proposes a solution to an unresolved problem
- Advances a theoretical debate

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

- Builds on and strengthens existing knowledge with new data

Methodology

The methodology chapter describes how the research was conducted, allowing the reader to assess its validity.

It includes:

- The overall approach and type of research (e.g. qualitative, quantitative, experimental)
- Methods of collecting data (e.g. interviews, surveys, archives)
- Details of where, when, and with whom the research took place
- Methods of analyzing data (e.g. statistical analysis, discourse analysis)
- Tools and materials used (e.g. computer programs, lab equipment)
- A discussion of any obstacles faced in conducting the research and how they were overcome.
- An evaluation or justification of the methods

The methodology must accurately report what was done, as well as convincing the reader that this was the best approach to answering the research questions or objectives.

Results

Results should report the outcomes that are relevant to the objectives and research questions.

In some disciplines, the results section is strictly separated from the discussion, while in others the two are combined.

For example, for qualitative methods like in-depth interviews, the presentation of the data will often be woven together with discussion and analysis.

In quantitative and experimental research, the results should be presented separately before discussing their meaning.

In the results section it can often be helpful to include tables, graphs and charts.

Discussion

The discussion is where the meaning and implications of the results are explored.

Here the results should be interpreted in detail, discussing whether they meet the expectations.

If any of the results were unexpected, explanations should be offered for them.

It's a good idea to consider alternative interpretations of your data and discuss any limitations that might have influenced the results.

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

The discussion should reference other scholarly work to show how the results fit with existing knowledge.

Recommendations for future research or practical action may also be made in this section.

Conclusion

The dissertation conclusion should concisely answer the main research question.

Usually the conclusion refers to the final chapter, where dissertation wrapped up with a final reflection on what was done.

Conclusions often include recommendations for research or practice.

In this section, it's important to show how the findings contribute to knowledge in the field and why your research matters.

Reference list

It includes full details of all sources (sometimes also called as bibliography) that were cited in the dissertation.

It's important to follow a consistent citation style.

Each style has strict and specific requirements for how to format your sources in the reference list.

Common styles include APA, MLA and IEEE

To save time creating the reference list and make sure your citations are correctly and consistently formatted, you can use the References feature of MS word.

Appendices

Documents that were used that do not fit into the main body of the dissertation can be added as appendices.

Editing and proofreading

Making sure all the sections are in the right place is important for a well-written dissertation. Grammar mistakes and sloppy formatting errors can bring down the quality of the dissertation.

References

Scholarly referencing **points the readers** towards sources that were cited in the work.

There are many different referencing styles.

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

Referencing should contain the following information:

- The author of the work
- The title of the work
- The type of publication (e.g. whole book, book chapter, journal article, webpage)
- The date of publication of the specific edition of the work you're using
- The publisher and place of publication
- If applicable, additional details (volume and issue number, page range)

Why and when do I reference?

To Avoid plagiarism.

Reference must be provided to any work done by others that was incorporated into your own work.

This does not just refer to direct quotations but also to paraphrases, data, and ways of thinking about a topic.

What referencing system do I use?

The referencing system to be used will be usually specified in the guidelines given by the university.

Its better to cite the references while writing the text in the dissertation instead of writing at the end.

A few of the reference styles are:

- Chicago (author-date)
- MLA (Modern Language Association)
- Harvard
- APA (American Psychological Association)
- IEEE

How referencing is changing with times – electronic sources and the Digital Object Identifier (DOI)

A **Digital Object Identifier**, or DOI, is an ISO standardised and increasingly commonplace way of referencing online sources.

It works like a cross between an ISBN and a URL. Like an ISBN, it's a unique, stable identifier for a particular digital source that allows you to look it up in a database; like a URL it also functions as a type of “address”, helping you identify not only what the object is but where it is.

The majority of new articles published in online journals are now assigned a DOI, and the information about that DOI (including the article's author, title, and publication date, and the name, volume and issue of the journal in which it was published) is stored in a centralised database as metadata.

Bibliography- lists books and other printed works referenced in a research paper.

Webliography- a product born out of web research, represents a list of websites used.

What is a bibliography?

A bibliography is a list of works on a subject or by an author that were used or consulted to write a research paper, book or article.

It can also be referred to as a list of works cited. It is usually found at the end of a book, article or research paper.

Gathering Information

Regardless of what citation style is being used, there are key pieces of information that need to be collected in order to create the citation.

For books and/or journals:

- Author name
- Title of publication
- Article title (if using a journal)

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

- Date of publication
- Place of publication
- Publisher
- Volume number of a journal, magazine or encyclopedia
- Page number(s)

For websites:

- Author and/or editor name
- Title of the website
- Company or organization that owns or posts to the website
- URL (website address)
- Date of access

General Guide to Formatting a Bibliography

For a book:

Author (last name first). Title of the book. City: Publisher, Date of publication.

EXAMPLE:

Dahl, Roald. The BFG. New York: Farrar, Straus and Giroux, 1982.

For an encyclopedia:

Encyclopedia Title, Edition Date. Volume Number, "Article Title," page numbers.

EXAMPLE:

The Encyclopedia Britannica, 1997. Volume 7, "Gorillas," pp. 50-51.

For a magazine:

Author (last name first), "Article Title." Name of magazine. Volume number, (Date): page numbers.

EXAMPLE:

Jordan, Jennifer, "Filming at the Top of the World." Museum of Science Magazine. Volume 47, No. 1, (Winter 1998): p. 11.

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

For a newspaper:

Author (last name first), "Article Title." Name of newspaper, city, state of publication. (date):
edition if available, section, page number(s).

EXAMPLE:

Powers, Ann, "New Tune for the Material Girl." The New York Times, New York, NY. (3/1/98):
Atlantic Region, Section 2, p. 34.

For a person:

Full name (last name first). Occupation. Date of interview.

EXAMPLE:

Smeeckleburg, Sweets. Bus driver. April 1, 1996.

For a film:

Title, Director, Distributor, Year.

EXAMPLE:

Braveheart, Dir. Mel Gibson, Icon Productions, 1995

CD-ROM:

Disc title: Version, Date. "Article title," pages if given. Publisher.

EXAMPLE:

Compton's Multimedia Encyclopedia: Macintosh version, 1995. "Civil rights movement," p.3.
Compton's Newsmedia.

Magazine article:

Author (last name first). "Article title." Name of magazine (type of medium). Volume number,
(Date): page numbers. If available: publisher of medium, version, date of issue.

EXAMPLE:

Rollins, Fred. "Snowboard Madness." Sports Stuff (CD-ROM). Number 15, (February 1997): pp.
15-19. SIRS, Mac version, Winter 1997.

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

Newspaper article:

Author (last name first). "Article title." Name of newspaper (Type of medium), city and state of publication. (Date): If available: Edition, section and page number(s). If available: publisher of medium, version, date of issue.

EXAMPLE:

Stevenson, Rhoda. "Nerve Sells." Community News (CD-ROM), Nassau, NY. (Feb 1996): pp. A4-5. SIRS, Mac. version, Spring 1996.

Online Resources**Internet:**

Author of message, (Date). Subject of message. Electronic conference or bulletin board (Online). Available e-mail: LISTSERV@ e-mail address

EXAMPLE:

Ellen Block, (September 15, 1995). New Winners. Teen Booklist (Online). Helen Smith@wellington.com

World Wide Web:

URL (Uniform Resource Locator or WWW address). author (or item's name, if mentioned), date.

EXAMPLE: (Boston Globe's www address)

<http://www.boston.com>. Today's News, August 1, 1996.

What is the Webliography?

A Webliography is an enumerative list of hypertext links and a gateway to the scientific sources of information on the Net.

Webliographies are in fact digital equivalents of bibliographies (printed lists of information sources).

Webliography

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

- Use a search engine to find websites relevant to the research topic. You need to know who authored the website, whether the author is an authority in the subject matter, whether the website has factual information rather than unsupported opinion and the date of the last update.
- Copy and paste the essential data into a document once you find a relevant website.
- Copy and paste the author's name, the title of the web page, the name of the website, the latest update date and the full URL address, copied directly from the address bar.

Research Proposal Writing

Beginning the Proposal Process

Like most college-level academic papers, research proposals are generally organized the same way.

Developing your topic

The proposals generally vary in length between ten and thirty-five pages but around 3,000 words would be desirable, followed by the list of references.

Examine carefully the following:

1. It must be interesting to you.
2. The topic chosen must be of some significance in your field of interest.
3. It must be feasible in the time allocated.
4. It must fit within financial and other resource constraints.
5. It must be within your competence/skill set.
6. It must be manageable in size.
7. It must have the potential to make an original contribution to knowledge or practice in the appropriate area.
8. It must be able to meet all ethical, legal and risk assessment requirements:
 - Issues such as securing permits from government or other agencies and UNE ethics committees

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

- protecting the privacy of individuals involved in your study
- ensuring intellectual property and likely access to information need to be considered carefully
- Any risk assessment procedures required to be carried out must be clearly indicated.

The following principles should be followed in developing a Research proposal:

1. A good proposal explains clearly three elements
 - what research is intended
 - why it is being researched
 - how the researcher proposes to carry out the research.
2. A good proposal is straightforward.
 - like, ‘This study will examine ...’ or ‘This study aims to ...’.
3. A good proposal uses clear and precise language.
4. A good proposal should be clearly organised.
5. It should be written in simple, logical, prose with clear headings and subheadings to mark out major sections.

In general the proposal should include the following sections:

I. Introduction

II. Background and Significance

III. Literature Review

IV. Research Design and Methods

V. Preliminary Suppositions and Implications

VI. Conclusion

VII. Citations

I. Introduction

After reading the introduction, the readers should have an understanding of what you want to do.

Note that most proposals do not include an abstract [summary] before the introduction.

It should answer the following four questions:

1. What is the central research problem?
 2. What is the topic of study related to that research problem?
 3. What methods should be used to analyze the research problem?
 4. What is its significance, and why should someone reading the proposal care about the outcomes of the proposed study?
-

II. Background and Significance

It can be melded into your introduction or you can create a separate section to help with the organization and narrative flow of your proposal.

- State the research problem and give a more detailed explanation about the purpose of the study than what you stated in the introduction.
 - Explain why it is worth doing.
 - Describe the major issues or problems to be addressed by your research.
 - Explain the methods you plan to use for conducting your research.
 - Describe the boundaries of your proposed research in order to provide a clear focus.
 - If necessary, provide definitions of key concepts or terms.
-

III. Literature Review

The purpose here is to place your project within the larger whole of what is currently being explored, while demonstrating to your readers that your work is original and innovative.

A good strategy is to break the literature into "conceptual categories."

You can challenge the conclusions made in prior research as a basis for supporting the need for your proposal.

State how previous research has failed to adequately examine the issue that your study addresses.

To help frame your proposal's review of prior research, consider the "five C's" of writing a literature review:

1. **Cite**, so as to keep the primary focus on the literature pertinent to your research problem.
2. **Compare** the various arguments, theories, methodologies, and findings expressed in the literature.
3. **Contrast** the various arguments, themes, methodologies, approaches, and controversies expressed in the literature.
4. **Critique** the literature: Which arguments are more persuasive, and why? Which approaches, findings, and methodologies seem most reliable, valid, or appropriate, and why?
5. **Connect** the literature to your own area of research and investigation.

IV. Research Design and Methods

Describe the overall research design by building upon and drawing examples from your review of the literature.

Consider not only methods that other researchers have used but methods of data gathering that have not been used but perhaps could be.

Be specific about the methodological approaches you plan to undertake to obtain information, the techniques you would use to analyze the data, and the tests of external validity to which you commit yourself.

V. Preliminary Suppositions and Implications

The purpose of this section is to argue how and in what ways you believe your research will refine, revise, or extend existing knowledge in the subject area under investigation. Depending on the aims and objectives of your study, describe how the anticipated results will impact future scholarly research, theory, practice, forms of interventions, or policymaking.

VI. Conclusion

The conclusion reiterates the importance or significance of your proposal and provides a brief summary of the entire study.

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

This section should be only one or two paragraphs long, emphasizing why the research problem is worth investigating, why your research study is unique, and how it should advance existing knowledge.

VII. Citations

As with any scholarly research paper, you must cite the sources you used.

RESEARCH GRANT PROPOSALS

The grant writing process

Writing successful grant applications is a long process that begins with an idea.

Applicants must write grant proposals, submit them, receive notice of acceptance or rejection, and then revise their proposals.

Unsuccessful grant applicants must revise and resubmit their proposals during the next funding cycle.

Successful grant applications and the resulting research lead to ideas for further research and new grant proposals.

Cultivating an ongoing, positive relationship with funding agencies may lead to additional grants down the road.

Thus, make sure you file progress reports and final reports in a timely and professional manner.

Some general tips

1. Begin early.
2. Apply early and often.
3. Don't forget to include a cover letter with your application.
4. Answer all questions. (Pre-empt all unstated questions.)
5. If rejected, revise your proposal and apply again.
6. Give them what they want. Follow the application guidelines exactly.
7. Be explicit and specific.
8. Be realistic in designing the project.

9. Make explicit the connections between your research questions and objectives, your objectives and methods, your methods and results, and your results and dissemination plan.
10. Follow the application guidelines exactly. (We have repeated this tip because it is very, very important.)

Before you start writing

First, identify your needs. **Answering the following questions may help you:**

- Are you undertaking preliminary or pilot research in order to develop a research agenda?
- Are you seeking funding for dissertation research or Pre-dissertation research or Postdoctoral research or Experimental research?
- Are you seeking a stipend so that you can write a dissertation or book?
- Do you want a fellowship at an institution?
- Do you want funding for a large research project that will last for several years and involve multiple staff members?

Next, think about the focus of your research/project.

- What is the topic?
- Why is this topic important?
- What are the research questions that you're trying to answer?
- What relevance do your research questions have?
- What are your hypotheses?
- What are your research methods?
- Why is your research/project important?
- Do you plan on using quantitative methods or Qualitative methods or Both?
- Will you be undertaking experimental research or Clinical research?

Finding prospective grants and funding agencies

Whether your proposal receives funding will rely in large part on whether your purpose and goals closely match the priorities of granting agencies.

Even if you have the most appealing research proposal in the world, if you don't send it to the right institutions, then you're unlikely to receive funding.

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

Most universities and many schools within universities have Offices of Research, whose primary purpose is to support faculty and students in grant-seeking endeavors.

Writing your proposal

The majority of grant programs recruit academic reviewers with knowledge of the disciplines and/or program areas of the grant.

Thus, when writing your grant proposals, assume that you are addressing a colleague who is knowledgeable in the general area, but who does not necessarily know the details about your research questions.

Style

From reading your proposal, the reviewers will form an idea of who you are as a scholar, a researcher, and a person.

They will decide whether you are creative, logical, analytical, up-to-date in the relevant literature of the field, and, most importantly, capable of executing the proposed project.

Allow your discipline and its conventions to determine the general style of your writing, but allow your own voice and personality to come through.

Organizing your proposal

There are several elements of a proposal that are fairly standard and in the following order:

- Title page
- Abstract
- Introduction (statement of the problem, purpose of research or goals, and significance of research)
- Literature review
- Project narrative (methods, procedures, objectives, outcomes or deliverables, evaluation, and dissemination)
- Personnel (people involved in carrying out of the project)
- Budget and budget justification

Format the proposal so that it is easy to read.

Use headings to break the proposal up into sections.

Title page

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

The title page usually includes:

1. Title for the research project
2. The names of the principal investigator.
3. The institutional affiliation of the applicants (the department and university)
4. Name and address of the granting agency
5. Project dates
6. Amount of funding requested
7. Signatures of university personnel authorizing the proposal

Abstract

The abstract provides readers with their first impression of your project.

The abstract should explain the key elements of your research project in the future tense.

Most abstracts state:

- (1) the general purpose,
- (2) specific goals,
- (3) research design,
- (4) methods, and
- (5) significance (contribution and rationale).

Introduction

The introduction should cover the key elements of your proposal, including
a statement of the problem,
the purpose of research,
research goals or objectives,
and significance of the research.

The statement of problem should provide a background and rationale for the project and establish the need and relevance of the research.

How is your project different from previous research on the same topic?

Will you be using new methodologies or covering new theoretical territory?

The research goals or objectives should identify the anticipated outcomes of the research and should match up to the needs identified in the statement of problem.

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

Literature review

Many proposals require a literature review.

Reviewers want to know whether you've done the necessary preliminary research to undertake your project.

Literature reviews should be selective and critical.

Project narrative

The project narrative should supply all the details of the project, including

a detailed statement of problem,

research objectives or goals,

hypotheses, methods,

procedures,

outcomes or deliverables,

evaluation and dissemination of the research.

Clearly and explicitly state the connections between your research objectives, research questions, hypotheses, methodologies, and outcomes.

Personnel

Explain staffing requirements in detail.

Mention the skill sets of the personnel already in place (you will probably include their Curriculum Vitae as part of the proposal).

Explain the necessary skill sets and functions of personnel you will recruit.

Budget

The budget spells out project costs and usually consists of a spreadsheet or table with the budget detailed as line items and a budget justification that explains the various expenses.

Make sure that all budget items meet the funding agency's requirements.

Many universities or government bodies require that indirect costs (overhead) be added to grants.

Check with the appropriate offices to find out what the standard (or required) rates are for overhead.

Timeframe

Prepared By
Dr.Swapna Raghunath,
Department of ECE,
GNITS, Hyderabad

Explain the timeframe for the research project in some detail.

When will you begin and complete each step?

For multi-year research proposals with numerous procedures and a large staff, a time line diagram can help clarify the feasibility and planning of the study.

Revising your proposal

Start the process early and leave time to get feedback from several readers on different drafts.

Seek out a variety of readers, both specialists in your research area and non-specialist colleagues.

In your revision and editing, ask your readers to give careful consideration to whether you've made explicit the connections between your research objectives and methodology.

Here are some example questions:

- Have you presented a compelling case?
- Have you made your hypotheses explicit?
- Does your project seem feasible?
- Does it have other weaknesses?
- Have you stated the means that grantors can use to evaluate the success of your project after you've executed it?

Dept. of ECE