



Government of Karnataka

**RESEARCH PROJECT GUIDELINES
FOR
SUPERVISORS, STUDENTS AND EXAMINERS**

**Department of Technical Education,
Palace Road, Bangalore 560001, Karnataka**

RESEARCH PROJECT

Introduction

The students of Polytechnic Programs will have an opportunity to be part of one of the most challenging educational experiences in the year-3, The students who were selected the Science and Research Pathway requires to do a research project on real-world problems which would motivate them to produce practical solutions in sixth semester

A research project focuses on conducting work on a research topic under the supervision of an academic staff member. This type of project typically requires developing a testable hypothesis, involves background reading, and requires systematic evaluation of a particular strategy or solution for a specific problem or topic applicable to the research area of interest. A research project provides a valuable introduction for students interested in possibly moving into a higher studies, research and may result in collaborative publications with the project supervisor. Students attempting this type of project are expected to learn the appropriate research methodologies and techniques necessary to support their project and clearly present them.

These guidelines are prepared for students and academic Supervisor to enable them to execute their respective roles and responsibilities in an effective manner, hence benefiting the students with that, the successful implementation of this course can then be realized.

Outcomes

After completing this research project, students will be able to,

- Write the Research Project Proposal
- Read and interpret others researcher's work critically while doing their own research work
- Develop a conceptual framework to address the identified problem statement by applying the research methodology concepts and theories
- Test and validate data to address the research questions/hypothesis

Responsibilities of the Head of the Department

The Head of the Department shall coordinate in Executing the Research Projects, their responsibilities can be summarized as follows:

- To approve Research Project Proposal
- To assign academic staff supervisor to a group of **maximum Four students** who are working on a common problem statement
- To maintain a centralized research project hub repository to facilitate research project management and keeping track of all projects

Responsibilities of the Supervisor

Students will be guided by the academic staff supervisor; their responsibilities can be summarized as follows:

- To Guide the students in writing the Research Project Proposal
- To Guide the students for the literature survey, selection of methodology, data collection, data analysis, testing of the Hypothesis etc
- To interact with the students once in a week to review the progress of the research work, these sessions will reinforce/review the concepts, findings and will focus on addressing issues relevant to weekly meetings
- To guide the students in managing the research project from start to finish meeting stated milestones and timelines
- To Review the draft of research project dissertation, presentation slides and provide suggestions to improve them
- Develop appropriate Rubrics and evaluate the student's research project work as per the assessment criteria
- To work together with students until the submission of the final dissertation and Semester End Examination
- Maintain all the documents related to the research project work

Responsibilities of the Students

Students are required to exercise self-discipline, self-management, job co-ordination, teamwork, and trustworthiness to ensure the success of the project.

Among the expected responsibilities are:

- To write a Research Project Proposal
- To review the literature, selection of appropriate methodology, data collection, data analysis, testing of the Hypothesis etc
- To adhere to the weekly meeting schedule with the supervisor for the purpose of updating their progress and seeking advice on project matters (Attendance is compulsory as per regulation) and submit weekly report
- To manage the research project from start to finish meeting stated milestones and timelines
- To report immediately to the supervisor any difficulties encountered that would interrupt the work.
- To submit Dissertation on time

Assessment of the Research Project Work

This section is addressed to supervisors and examiners. It provides information on assessment criteria for the research project work. It also provides guidance to students about what examiners will be looking for in evaluating the projects. The Research project work will be assessed for 400 marks through formative and summative assessment tools, in formative assessment the project will be evaluated for 240 marks and in summative assessment project will be evaluated for 160 marks

The Formative Assessment- (Continuous Internal Evaluation- CIE)

The Formative Assessment is conducted for 240 marks throughout the course in three developmental phases as CIE-I, CIE II and CIE-III. Students shall complete CIE-I before taking CIE-II and complete CIE-II before taking CIE-III, otherwise they will not be eligible to take Semester End Examination

Continuous Internal Evaluation- CIE - I conducted at the end of 4th week		
Sl No	Assessment parameters	Marks
1	Research Project Proposal: <ul style="list-style-type: none"> • Scope of the Research Project -15 marks • Background of the study -15 marks • Research Problem statement -30 marks • Hypothesis/Research Questions -20 marks 	80
	Total	80

Continuous Internal Evaluation- CIE - II conducted at the end of 8th week		
Sl No	Assessment parameters	Marks
1	Literature Survey -Are the relevant concepts and empirical studies in literature were critically reviewed in literature survey?	30
2	Research Methodology - Are the Research Design, Population of the Study, Sampling Techniques, Instrument for Data Collection, Validity of the Instrument, Reliability of the Instrument, Procedure for Data Collection, Method of Data Analysis were well suitable for the research work?	30
3	Testing of Methodology -Are the selected methodology is tested with sample Data	20
	Total	80

Continuous Internal Evaluation- CIE - III conducted at the end of 12th week		
Sl No	Assessment parameters	Marks
1	Data collection and Data analysis	25
2	Testing of Hypotheses <ul style="list-style-type: none"> • Hypothesis 1 • Hypothesis 2 • Hypothesis 3, etc. 	25
3	Discussion on the Findings	30
	Total	80

The Summative assessment- Semester End Examination (SEE)

During the semester end examination, students shall demonstrate and defend the outcomes of their research work to the Panel of Examiners comprises of an internal supervisor and an external Subject expert

The evaluation criteria are as follows:

Sl No	Criteria	Marks
1	Presenting and Defending the Research work	60
2	Demonstrating the Outcomes of Research work	60
3	Dissertation Report -Format and Technical writing skill	40
	Total	160

Plagiarism

Plagiarism is the act of obtaining or attempting to obtain credit for academic work by representing the work of another as one's own without the necessary and appropriate acknowledgment. If a student is in doubt of the nature of plagiarism, he/she should discuss the matter with the supervisor. If a student is caught committing plagiarism, disciplinary action will be taken against the student

Keeping in view the policy of plagiarism, and avoid piracy of intellectual property, the student needs to follow the citation policy:

- When 10 words are taken together from some established core work, citation becomes essential.
- when the copied content reaches 40 words in accumulation, the fragment needs to be kept under inverted comma (“_”) in italic.
- It is necessarily required to cite reference in case of any content adopted from anywhere other than internet open sites. It is also that, even in case of open site internet source or any other source the copied contents if found more than 35 percent in aggregate during plagiarism detection, the work shall not be considered for further process and asked to resubmit the report again for the evaluation

Copyright

The Polytechnic institutions shall be the owner for all findings, designs, patents, and other intellectual property rights.

FORMATS

**Department of Technical Education
Research Project**

Format- 1

Research Project Proposal

Research project proposal

This proposal guides the students to conduct research effectively through out course. When the students prepare a research proposal, few important factors should be taken into account such as scope of the project, background to the study, Problem Statement and possibility to complete by given time frame. The project proposal should not exceed 2-3 pages and key components of the project proposal are as follows.

1. Title:
2. Proposer Name:
3. Scope of the Research Project:
4. Background of study:
5. Research Problem Statement:
6. Hypothesis/Research Questions.
7. Time Frame:

Date

Signature of the student

Signature of the Supervisor

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**Format- 2
Weekly Meeting Record**

<For Supervisor Use>

Project Title:		
Group Members	1) 2) 3) 4)	<input type="checkbox"/> Present <input type="checkbox"/> Present <input type="checkbox"/> Present <input type="checkbox"/> Present
Date		
Meeting venue		<input type="checkbox"/> On Time
Documents Submitted	<input type="checkbox"/> Status Report	<input type="checkbox"/> On Time
Issues Group Working on		
Assessment of Progress	<input type="checkbox"/> Excellent <input type="checkbox"/> Good <input type="checkbox"/> Satisfactory <input type="checkbox"/> Fair <input type="checkbox"/> Poor	
Notes/ Concerns/ Comments		

Signature of the Supervisor

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**Format- 3
Weekly Status Report**

Project Name: <State the Title of the project>

Project Members: <List of group members>

Status:

Briefly describe and illustrate the progress.

Highlights

List any items of note. Breakthroughs, accomplishments, major decisions, or changes in the project plan Are you on schedule, ahead of schedule or behind schedule?

Tasks in Progress or Completed:

List the tasks that each member of the project worked on up to the present time.

Task Name	Description	Team Member Responsible	Percentage Complete

Upcoming Tasks:

List the tasks that each project member is planning to work on in the upcoming Task.

Task Name	Description	Team Member Responsible

Date

Signature of the students

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**Format- 4
Student's Daily Log Book**

Project Name: <State the Title of the project>

Project Members: <List of group members>

Day-1	Date:
Project Title:	
Name of the student	
Name of the Supervisor:	
Remarks of the Supervisor:	
Record Main actives of the day (including observation, sketches, discussions, etc):	
Signature of the Supervisor	

Note: Prepare a A4 size hard bound Student's Daily Log book using this format with college and student details

**Department of Technical Education
Research Project**

Format- 5

Research Project Dissertation Template

The contents of the Dissertation shall be arranged in the following order:

- Cover Page
- Inside Title Page
- Certificate signed by the supervisor and HOD
- Declaration signed by the Candidate
- Acknowledgements
- Abstract
- Table of Contents
- List of Figures
- List of Tables
- Abbreviations/ Notations/ Nomenclature (if any)
- Text of the Report
 - Chapter 1: Introduction
 - Chapter 2: Literature Review
 - Chapter 3: Methodology
 - Chapter 4: Results and Discussions
 - Chapter 5: Conclusion and Recommendations
- References
- Appendices
- Non-paper materials (if any)

Each chapter of the project Thesis shall have,

Chapter 1: Introduction

- Background to the Study
- Statement of Purpose
- Research Questions and/or Hypothesis

Chapter 2: Literature Review

- Conceptual Framework
- Theoretical Framework
- Empirical studies

- Appraisal of Reviewed Literature

Chapter 3: Methodology

- Research Design
- Population of the Study
- Sample and Sampling Techniques
- Instrument for Data Collection
- Validity of the Instrument
- Reliability of the Instrument
- Procedure for Data Collection
- Method of Data Analysis

Chapter 4: Results and Discussions

- Testing of Hypotheses
- Hypothesis 1
- Hypothesis 2
- Hypothesis 3 etc
- Discussion on the Findings

Chapter 5: Conclusion and Recommendations

General Guidelines

Report Size - Dissertation shall contain maximum of about 100 pages including references and appendices.

Paper Size - Use A4 size paper

Paper Quality - White bond paper weighing 85 g/m² or more should be used. Photographs or images with dense colors may be printed in single side on glossy paper.

Margins - A margin of 40 mm is to be provided on left and 30 mm on right sides, whereas top and bottom margins should be 30 mm. No print matter should appear in the margin except the page numbers. All page numbers should be centered inside the bottom margin, 20mm from the bottom edge of the paper.

Font - Times New Roman (TNR) 12-point font shall be used throughout the running text. The captions for tables and figures should have font size of 11 and foot notes should be set at font size 10. Font sizes for various levels of headings are given in the table below

CHAPTER 3

TITLE PAGE-CENTERED TNR 17-POINT BOLD ALL CAPS

3.1. Section Heading

Left aligned with number, TNR 17 points, bold and leading caps

3.1.1. Second level section heading

Left aligned with number, TNR 14 points, bold and sentence case.

3.1.1.1 Third level section heading

Left aligned with number, TNR 12 points, bold and sentence case.

Fourth-level section heading

Numbered subsections beyond third level are not recommended. However, fourth-level subsection headings may be included without numbering, TNR 12-point font, left aligned and italicized

Running text should be set in 12-point TNR and fully justified. First line of paragraph should have indentation of 15 mm.

Line Spacing - The line spacing in the main text should be 1.5, for quotations, figure captions, table captions, figure legends, footnotes, and references. The equations, tables, figures, and quotations Single line spacing should be given.

Table / Figure/equation Format-

Tables, figures, and equations shall be numbered chapter-wise. For example, second figure in Chapter 3 will be numbered Figure 3.2. The figure can be cited in the text as Figure 3.2, Tables shall be numbered similarly (Table 2 in Chapter 3 will be numbered Table 3.2) and shall be cited in the text as Table 3.2. Figure caption shall be located below the figure. Table number and caption shall be located above the table. Equations are aligned to the Centre of the page with equation number in the text has to be given at the end of the line within brackets as given below.

$$f(x) = a_0 + \sum_{n=1}^{\infty} [a_n \cos n\pi x/L + b_n \sin n\pi x/L] \quad (\text{eq. 2.1})$$

Listing of the References

Referencing is a way to give credit to the writers from whom you have borrowed words and ideas. By citing the work of a particular scholar, you acknowledge and respect the intellectual property rights of that researcher. As a student or academic, you can draw on any of the millions of ideas, insights and arguments published by other writers, many of whom have spent years researching and writing. All you need to do is acknowledge their contribution to your assignment.

References are to be listed after last chapter. They are to be listed in alphabetical order and numbered. Within a reference the line spacing should be single. Each reference should be separated by one blank line. The reference number should be left aligned. The text of the reference should have an indentation of 10 mm. The reference format to be followed for journal articles, text books, conference proceedings etc. are given below.

Journals

1. Parkas, K. (2011). Feedback and optimal sensitivity: Model reference transformations, multiplicative semi norms, and approximate inverses. *IEEE Transactions on Automatic Control*, 26(2): 301–320.

0303

Text books

1. Myers, D. G. (2007). *Psychology* (1st Canadian ed.). Worth: New York.

Conference proceedings

1. Payne, D.B. and Gunhold, H.G. (1986). Digital sundials and broadband technology, In Proc. IOOC-ECOC, 1986, pp. 557-998.

Reports

1. Milton, M and Robert, L. (2004). Atmospheric carbon emission through genetic algorithm, Environment and Technical Report No.3., Indian Meteorological Department., New Delhi

Online journals with a DOI (Digital Object Identifier)

1. Krebs, D.L. and Denton, K. (2006). Explanatory limitations of cognitive developmental approaches to morality. *Psychological Review*, 113(3): 672- 675. doi: 10.1037/0033-295X.113.3.672

Online journals without a DOI

1. Vicki, G.T., Thomae, M., Cullen, A. and Fernandez, H. (2007). Modeling the hydrological impact on Tropical Forests. *Forest Ecology*, 13(10): 122-132. Retrieved from <http://www.uiowa.edu/~grpproc/crisp/crisp.html>

Online books

1. Perfect, T.J. and Schwartz, B. L. (Eds.) (2002). *Applied metacognition*. Retrieved from <http://www.questia.com/read/107598848> (--If DOI is available, use the DOI instead of a URL

Chapters from a book

1. Krebs, D.L. and Denton, K. (1997). Social illusions and self-deception: The evolution of biases in person perception. In J. A. Simpson & D. T. Kenrick (Eds.), *Evolutionary social psychology* (pp.21-48). Hillsdale, NJ: Erlbaum

Appendices

Include data tables, drawings, background calculations, specification lists for equipment used, details of experimental configuration, and other information needed for completeness,

Page Numbering

Page numbers for the prefacing materials (Inside title page, dedication, certificate, declaration, acknowledgements, Abstract, table of contents, etc.) of the report shall be in small Roman numerals and should be centered at the bottom of the pages.

The numbering of the prefacing material starts from the Inside Title Page. However, the number is not printed on the Inside Title Page. Each new item of the prefacing materials listed above should start on a fresh paper on right page. If the content of the prefacing material exceeds one page, it has to be printed on both sides of the paper by starting from the right-side page. For example, if the item „Table of Contents“ extends for 5 pages, it should be printed in fresh paper on right side page with second page of the „Table of Contents“ on the back of the paper and then continued. The page numbers of the prefacing material will be printed in small Roman numerals continuously counting blank pages also. However, the numbers are not

printed on the blank pages

The body of the report starting from Chapter 1 should be paginated in Arabic numerals and should be centered at the bottom of the pages. The pagination should start with the first page of Chapter 1 and should continue throughout rest of the report. Each side of a sheet of paper should be counted as a separate page, even if the back side of a sheet of paper is blank. The odd numbered pages are always on the right and even-numbered pages are always on the left. If the end of a chapter is in odd page (right side page) the next chapter should start on odd page i.e., on a fresh paper, and should be numbered as odd only by counting the blank even page also. However, the page number is not printed on the blank pages.

Each of the items - Inside cover page, Certificate, Acknowledgements, Abstract, Table of Contents, List of Figures, List of Tables, Abbreviations, Notations, Nomenclature, each new Chapter, References, and each new Appendix should start on an odd page i.e., on the right side

Non-Paper Material

A report may contain non-paper material, such as specimen, CDs and DVDs, Pen drive if necessary. They have to be accommodated in a closed pocket in the back cover page of the report. The inclusion of non-paper materials must be indicated in the Table of Contents. All non-paper materials must have a label each clearly indicating the name of the candidate, student Register number and the date of submission.

Binding

Two hard bounded copies of the Dissertation shall be submitted for evaluation, the cover page should be printed on sky blue card of 300 g/m² or above. One copy is used for Semester End Examination and after the exam it should be maintained in the concerned Head of the department and another copy is maintained at supervisor

Electronic Copy

An electronic version (PDF) of the Dissertation should be submitted to the supervisor and Head of the department. The file name should contain title of the project, student Register number and date of submission