B.E. EXTC

BHARATIYA VIDYA BHAVAN'S

SARDAR PATEL INSTITUTE OF TECHNOLOGY

FINAL YEAR PROJECT HANDBOOK

DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION

extc.spit.ac.in

FOREWORD

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Vice-principal,
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Sardar Patel Institute of Technology

The Final year project is the single most important project that you, as students of Engineering, will carry out. This handbook will serve as a guide to you along the course of your project. It has been designed to answer most of the commonly arising queries – queries such as “Where do we start?”, “What next?”, “How to document/present?” It will act as a reference during various stages of your project, starting from literature survey and conceptualization all the way to design of system, project documentation and presentation. This handbook is a result of the suggestions and feedbacks given by your seniors along with inputs from the concerned faculty members. You are welcome to provide any suggestions that will make this book more informative and useful to the coming batches. ALL THE BEST!

FOREWORD

Prof. (Dr.) Parul Shah
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Final year project plays a crucial role in enriching the technical & intellectual experience of a student by tackling a realistic engineering problem. The intent is to learn how to put theoretical knowledge gained into practical use by starting from a word description of a problem and proceeding through various design phases to end up with a practical engineering solution. The student also acquires the skill of working as part of a team to solve a challenging and practical design and build problem within a limited budget.

The project advisor guides the student in conducting a feasibility study, preparing specifications, and adapting design methodology. Detailed design and implementation of the project are carried out followed by testing, debugging, and documentation.

This handbook will facilitate the students and their guide to plan the work and keep track of the progress. I appeal to all the final year students to make most of this learning opportunity. Good luck.

This document outlines the contents of the Final Year Project handbook, which is intended to be used by students and faculty members in the Electronics & Telecommunication Engineering Department of Sardar Patel Institute of Technology. This handbook is the result of an effort initiated to define the policy and improve the quality of the Final Year Project. The intention of this handbook is to develop a standardized framework for undergraduate Electronics & Telecommunication students to showcase their project progress. It serves as a guideline to the expected format for students and project guides.

Project Title: _____

_____

STUDENT DETAILS

Team Member 1:

Name: _____

Roll No. (10 digit): _____

Contact: _____

Email: _____

Permanent Address: _____

_____

Team Member 2:

Name: _____

Roll No. (10 digit): _____

Contact: _____

Email: _____

Permanent Address: _____

_____

Team Member 3:

Name: _____

Roll No. (10 digit): _____

Contact: _____

Email: _____

Permanent Address: _____

_____

Team Member 4:

Name: _____

Roll No. (10 digit): _____

Contact: _____

Email: _____

Permanent Address: _____

_____

Project Guide: _____

1. CONTENTS

2. INTRODUCTION

Your final year project is one of the most important aspects of your engineering degree. To see why, let's look at a definition of engineering, taken from the IEEE.

> *"Engineering is that profession in which knowledge of the mathematical, computational, and natural sciences gained by study, experience, and practice is applied with judgement to develop economically effective use of matter, energy, and information to the benefit of humankind."*

Engineering is first and foremost the application of knowledge. However, the application must be carried out with judgement, to ensure that the resultant system is effective and efficient, and that it is of benefit (which raises the issue of the ethical responsibilities of engineers - a topic for another day). The final year project is one of the primary the mechanisms used by the College to provide you with an opportunity to gain experience in the practical, effective, efficient, and beneficial application of what you have been studying for the past several years. Naturally, you will continue to gain engineering experience after you graduate but the final year project will be your first exposure to the full rigour of engineering practice. It is essential that you learn from this exposure and practise all of the engineering methodologies involved. It is particularly important that you learn not just to apply what you know, but to apply it with judgement, with the ability to assess what you are doing and to be critical of it.

There is another reason why your final year project is so important: it will inevitably be used as a discriminator to decide how good an engineering student you are. If you end up with a result in your degree examinations which is on the borderline between one grade and another, the

examiners will look at how you performed in your project and then they will make a decision as to which grade you should be assigned. Finally, your final year project counts for 12.5% of your 4th Year marks. So, for the next 8 months, you should devote yourself totally to your final year project. Think of it as your passport to the engineering profession - your formal studies are your ticket but without your passport, you can't travel. Note, however, that you shouldn't neglect your other studies in the pursuit of your project: a passport is useless without a ticket!

2.1 OVERVIEW

Now that we have established the importance of your final year project, let's look at the important issues in pursuing it. There are four principal concerns:

1. Choosing a project
2. Planning, executing, and managing your project
3. Documenting your project
4. Assessment of your project

2.1.1 CHOOSING YOUR PROJECT

Given that you are going to spend a lot of time working on your project, it is essential that you pick a project which you like and which you are capable of doing. Note that these are not necessarily the same things: just because you like a particular project doesn't mean you are qualified to do it. You may not have taken all of the requisite courses or it may be a more

theoretically-aligned project whereas you might be a more practically-oriented engineering student (or vice versa). Think long and hard before making your final choice. At the very least, you should take the following steps in assessing and choosing an appropriate topic.

1. Find out what are your options.
2. Make a short-list of three projects.
3. Think about proposing your own project. Using the descriptions you have read as a guideline, write your own proposal. Note, however, that the feasibility and suitability of your proposal will have to be assessed before it can be added to your list. Submit your proposal to the Project Coordinator who will have it reviewed by an appropriate member of staff.

2.1.2 PLANNING, EXECUTING AND MANAGING YOUR PROJECT

Most students have no idea how to begin their project. This is understandable: it is the first time they will have had to tackle a large amount of work that is probably poorly defined. To get started, it helps to know the key activities that result in a successful project. They are:

1. Literature Survey
2. Problem identification
3. Requirements elicitation
4. Problem modelling
5. System analysis and specification
6. System design

7. Module implementation and system integration
8. System test and evaluation
9. Documentation
10. Project management

2.1.2.1 LITERATURE SURVEY

Literature survey is a background work that is made personally. It is based on books and academic publications. The topics of literature surveys are selected so that they support the project. The main goal of a literature survey is to gather a basis for the practical work and to show that the student is familiar with existing literature and research on the topic. It is not smart to re-invent the wheel, i.e., one has to know what has already been done. A Literature Review is not simply a list of pertinent references, each considered in isolation. In addition to conveying an understanding of the topic, a good Literature Review critically evaluates key ideas and observations while making meaningful comparisons between the works of various authors. In reviewing the work that has been performed on a particular topic to date, it should be possible to identify knowledge gaps or inconsistencies, which may form the basis for future experimental work. Following are some of the key sources for conducting literature surveys:

i. Journal papers (IEEE, Elsevier, Springer, Wiley, IETE etc.)
ii. International conference papers (IEDM, VLSI Design etc.)
iii. Academic reference books

iv. Websites of core industries
    a. data sheets
    b. application notes
    c. videos
    d. software manuals
v. Previous project reports
vi. Projects from other universities
vii. Patents search

2.1.2.2 PROBLEM IDENTIFICATION

Problem Identification involves a lot of background work in the general area of the problem. Normally it calls for the use of prior experience, typically experience you may not yet have. It requires an ability to look at a domain and to identify the issue that needs to be addressed and the problem to be solved. It also requires an understanding of the theoretical issues by which we can model the problem. So, the first thing you need to do in your project is become an expert in the problem at hand: *a problem-domain expert.*

At the same time, you also need to know how to handle the tools that will enable you to solve the problem. These might include the operating system, the programming language, the application programming interface (API) definitions, class libraries, toolkits, or any application-specific analysis utilities. That is, you also need to become a *solution-domain expert.* The only way to become an expert in both the problem domain and the solution domain is to learn as much as possible about the area and to learn it as quickly and efficiently as possible. Many

people come get stuck at this first step and they launch themselves into a frenzy of unstructured research, reading much but learning little.

2.1.2.3 REQUIREMENTS ELICITATION

Having chosen your project, you will have in your possession a short description of what is involved in the project. You will realize by now that this is completely insufficient for you as a basis for doing the project. Consequently, your next task must be to find out exactly - and completely - what the project entails. This isn't as easy as it sounds. You might think that you should just ask your supervisor and he or she should tell you. It doesn't work like that. Quite often, a supervisor won't have an exact (and complete) model of what is required - supervisors are just like engineering clients and customers in the business and industrial world. It is your job to help your supervisor identify exactly what he wants. That's what good engineers do: they help people understand what they want and then they build it for them.

2.1.2.4 PROBLEM MODELLING

Once you know the requirements, and are an expert in the problem domain, you can abstract the problem from the problem space and model it computationally: this means we can identify the theoretical tools we need to solve the problem. Examples include statistical analysis for the elimination of noise on the communication channel, characterization of the relationship between fuel consumption and engineer cylinder temperature for the engine control; the extraction of facial features from images, and the statistical classification techniques used to match these feature with faces in a database.

This is the foundation of all engineering and science: the creation of a rigorous - usually mathematical - description of the real physical problem to be addressed as it controls, communications, electronics, or some computational model. For example, if your problem concerned with packet routing, you might represent it using a graph and deploy formal graph theoretic tools for its analysis; if your problem is concerned with signal analysis, you might choose a Fourier representation or an Eigen-vector representation and deploy the appropriate theorems in Fourier analysis or linear system theory. If your problem is to do with building a database, you will probably model the system with an entity-relationship diagram and validate the model by normalization.

The key to all successful engineering is the use of an explicit model: if you don't have a model, you are probably not doing engineering. Connecting components (or lines of code) together is not engineering, irrespective of whether it works or not. Without the model you won't be able to analyse the system and, thereby, make firm statements about its robustness, operating parameters, and limitations.

2.1.2.5 SYSTEM ANALYSIS AND SPECIFICATION

With the requirements document, problem definition, and computational model identified, we can now say exactly what our system will do and under what circumstances it will do it. This is the system specification. In writing the specification, you should begin with the requirements document and then you should identify the following.

- The system functionality

- The operational parameters (conditions under which your system will operate, including required software and hardware systems)
- Failure modes and actions on failure
- Limitations & restrictions
- User interface or system interface

2.1.2.6 SYSTEM DESIGN

You are now in a position to design your system using whatever design methodology is appropriate for the area (and these will inevitably be specific to the particular area, be it filterdesign, amplifier design, software design, and so on). That said, there are a few general guidelines that apply to all areas:

- Identify several design options - algorithm, data-structures, files, interface protocols - and compare them.
- Analyse your design to ensure it is technically feasible (i.e. validate its realizability). Remember, you can't always build everything you design, either for theoretical reasons (ideal filters, for example) or for pragmatic reasons.
- Analyse your design to ensure it meets the specifications (i.e. validate its operational viability)
- Cost your system (i.e. validate its economic viability)
- Choose the best design. You will have to define what 'best' means for your particular project. It might mean the cheapest to manufacture, it might mean the fastest, and it might mean the

smallest - it all depends. It's up to you to identify the test for optimality. As John Canny in MIT once put it when comparing different filtering techniques: you choose your optimality criterion, and you take your choice.

Note well that this is the hallmark of good engineering: the practice of qualitative and quantitative assessment of different options. Note too that our original definition of engineering is reflected in this design process: the creation of effective, efficient, and beneficial systems.

2.1.2.7 MODULE IMPLEMENTATION & SYSTEM INTEGRATION

Finally, we are at the point where we can build the hardware and/or write the software. There is not much to say here since the construction methodologies are so domain specific, even more than in the case of design. However, there is one small piece of advice which is applicable to all areas: use a modular construction approach.

Don't attempt to build the entire system in one go in the hope that, when you switch it on or run it, it will work. This is the so-called Big Bang approach (everything comes into existence at one instant) and its name is very appropriate for it almost always results in initial chaos. It is much better to build (and test) each component or modular sub-system individually and then link them or connect them together, again one component at a time.

2.1.2.8 TESTING AND EVALUATION

Most undergraduate engineers (and some graduate ones) misunderstand the meaning of the word testing. They think it means showing that something works: their project, for example. But it doesn't. Testing means much more than this. Certainly, you need to show that it works (i.e. that it meets the requirements and operates according to the specification), but a good testing strategy also attempts to break the system: to show not where it works but where it fails. This is sometimes referred to as stress testing. A well-engineered system will always have been stress-tested: that is, taken beyond the point at which it was expected to operate to see how it behaves under unexpected circumstances. This is particularly important for safety-critical systems (e.g. a heart pacemaker, an airline navigation system, a stock-exchange transaction processing system). In engineering, we normally formalize the testing process by referring to three distinct goals:

1. *Validation*

   Simply stated, this test answers the questions: *Have I built the right system? Does it satisfy the requirements?* It may seem obvious, but you'd be surprised the number of times that the system which is built isn't what is wanted at all. You should compare the system's behaviour with the original requirements and system specification. Validation is extremely important and it should be carried out with great attention to detail.

2. *Verification*

   In this case, the questions are: Have I built the system right? Is it computing the right answer? This is what most people understand by testing.

3. *Evaluation*

   Finally, we ask: *How good is the system?* Again, the hallmark of good engineering: we seek to assess the systems performance and compare it to that of other similar systems. Ideally, you should identify some quantitative metric by which to compare the systems, since numbers are the best and perhaps the only way to objectively describe performance. For example, consider the mean time between failures (MTBF) or the number of incorrect rejections in a pattern recognition system. Quite often, we use statistical measures as our comparative metric, *e.g.* the mean and standard deviation of some performance measure when the system is subjected to a large variety of input parameters and conditions.

2.1.2.9 DOCUMENTATION

We noted earlier that writing is an essential part of understanding. We note it again here but in a different sense. In this case, writing is essential in order for others to understand what you have done. There are two reasons why you want others to understand your work:

1. So that you can be given credit for it (your final mark depends on it)
2. So that others can carry on your work and develop or maintain your system.

It is extremely important that you document your work at every stage of your project. We saw already that documentation is essential in the initial reading-in, requirements, and specification phases but it is equally important in the design, implementation, test, and maintenance phases.

The best way to organize your writing is to keep a log book of all work in progress. You should go out and buy a nice hard-cover notebook and write everything you do on the project into this

log book every day. Every thought and observation you have on your project should go into this book, along with notes of meetings with your supervisor, results, theoretical developments, calculations, everything. This log book will become an invaluable source of material when you come to write up your project in the final report.

However, don't wait until the end of the project to begin the process of formal documentation. At the end of each phase of the project (or at the end of each task) you should write up a formal report on that phase. These reports will, in turn, become an excellent basis for your final report. Finally, there is one other form of documentation which you will have to create during your project. This is the project presentation.

2.1.2.10PROJECT MANAGEMENT

One of them most important things you will learn when doing your project is the need to manage your time. Final Year Projects require a considerable amount of time. You should expect to spend at least 150 hours working on it, and probably 200 or more. Any attempt to try to complete a project in the last couple of months or so of the second semester is doomed to failure. They are complex and require careful thought and analysis to identify manageable component parts. Consequently, it is essential that you begin your project early, work consistently at it throughout the year, and track your progress closely. Naturally, the best way to do this is to plan your project in considerable detail. We will identify here one of the fundamentals of good project management: scheduling.

A project schedule is an indispensable tool: building it forces you into thinking about all the things you need to do, their inter-relationships, the time each will take, and what each one will be used for. So, draw up a schedule.

3. PROJECT ORGANISATION

There are a number of organisational matters you should be aware of to complete your project successfully.

3.1 PROJECT PROPOSAL

Before being accepted for a project, you must submit a 'Proposal' to your intended supervisor. This must describe the aims of the project and discuss the methodology you intend to use in achieving those aims. Please refer to the Proposal Template in the Appendix for details.

Project guides will suggest both specific projects, and project areas, on the departmental website. Review these carefully, and then go and talk to the guides who have indicated projects that sound of interest to you.

3.2 PROGRESS REPORTS AND LOG BOOK

Your project guide may require you to submit periodic, written progress reports. A typical report might contain

1. The project title
2. Your name
3. A short description of your progress since the previous report
4. A summary of the work you expect to complete before the next report.

3.2.1 LOG BOOK

The best way to organize your writing is to keep a log book of all your work in progress. You should write everything you do on the project in this log book every week. Every thought and observation you have on your project should go into this book, along with notes of meetings with your supervisor, results, theoretical developments, calculations, everything. This log book will become an invaluable source of material when you come to write up your project in the final report. It will also provide relevant material for your interim and final report. You should submit the log book to your mentor at the end of the project. A logbook is essential to get proper credit of the project while patenting and copyrighting and in case of legal proceedings.

3.3 INTERIM REPORT

You will be required to submit an interim report and make a short presentation on your project at the end of Semester VII. The report should describe the background material/literature review for your project, detail the problem description and summarize your approach.

This presentation should consist of the following points:

- Goals of your project
- Overview of background
- Completed log book
- Problems encountered
- Planned next steps

3.4 FINAL PROJECT REPORT

You will submit a final report at the end of your project. See Appendix B for the suggested report structure.

4. DOCUMENTATION

We noted earlier that writing is an essential part of understanding. We note it again here but in a different sense. In this case, writing is essential in order for others to understand what you have done. There are two reasons why you want others to understand your work:

- So that you can be given credit for it (your final grading depends on it)
- So that others can carry on your work and develop or maintain your system

It is extremely important that you document your work at every stage of your project. We saw already that documentation is essential in the initial reading-in, requirements and specification phases but it is equally important in the design, implementation, test and maintenance phases.

4.1 DOCUMENTING YOUR WORK

The main reason for documenting the work you have done for your final year project is assessment. For this reason it is important that this is: concise, precise and complete. A suggested report layout is included in the Appendix. Remember that it is the content that is most important. Note that this does not mean that you just simply have to fill in the gaps in a general report template. The standard structure simply provides you with a place to start as you begin to design the final structure and content of your documents. You will still have to do quite a lot of work to make it fit your own project.

A second reason for documenting your work is to provide experience for the future: be it in industrial development, or research, or anything setting. You will need to produce documentation and reports in almost all careers and the final year project provides you with an opportunity to experience this in a guided and supervised context.

Note that for some projects the research will provide the basis for your software development; in other projects your software development will provide the basis for evaluating your own theoretical developments. In either case, the research must be well performed, and the software must be developed and tested in a systematic manner.

4.2 PROJECT REPORT

Project reporting is the formal presentation of monitoring information. The main reasons for reporting are the following:

a) *To formally inform management:*
   Reporting ensures that management, particularly the project coordinator's supervisor or project manager, is formally appraised of the progress made in project implementation and the supervisor or project manager is aware at an early stage of actual and potential problems and any remedial action taken;
b) *To validate requests for further funding*:
   Reporting ensures that the BFMS is kept informed of all aspects of project implementation. BFMS, together with project coordinators or managers, can then ensure that disbursed funds have been properly used before authorizing any further release of funds;
c) *To serve as an audit and evaluation trail:*
   Reporting maintains a record of all actions taken during project implementation. It therefore constitutes a vital resource for auditors and evaluators in assessing whether a project has been implemented in accordance with the rules and regulations and as efficiently and effectively as possible;
d) *To serve as a reference for future projects*:
   Reporting serves as a vital resource for ensuring that lessons learned (project successes, failures, best practices) through project implementation are available for consideration when formulating and implementing future projects;
e) *To report to the donors on the project's progress*: Often, reporting is requested by donors as they have shared interests with UNEP in the success of projects. Donors sometimes fund projects contingent upon satisfactory progress. They increasingly ask for progress and final

reports at the results and objectives level rather than at the level of output or activity delivery.

4.3 PROJECT PRESENTATION

Your final presentation should cover the following topics:

- Introduction
  - Give a very brief description of your project goals
  - Describe the motivation of your project
- Background
  - Describe the background to your
  - Identify previous work which has been done in the relevant domain
- The Problem
  - Describe the problem
  - Include technical details
- The solution
  - Describe the solution(s) you developed and/or evaluated
  - Include technical details
  - Identify any threats to the validity of the solution
- Evaluation
  - Summarise how you evaluated the solution
  - Summarise the results of your evaluation of the solution

- Evaluate how well you executed your project - for example:
  - how well you understood new knowledge
  - how well you learned to use new tools
  - how well you evaluated the solution

5. COURSE OVERVIEW

Program: B.E. (Electronics & Telecommunication Engineering)			
Course: Project I and Project II			
Evaluation System		**SEM VII**	**SEM VIII**
	Oral examination	25	100
	Term Work	25	50
	Total	50	150

5.1 COURSE EDUCATIONAL OBJECTIVES (CEO) - SEMESTER VII

CEO 1	To enable students to explore the wide range of topics, give an opportunity for innovation, search for the professional literature and apply the problem-solving approaches.
CEO 2	To help students in problem formulation, setting project goals and utilization of the available resources in an optimum manner leading to innovation.
CEO 3	To develop managerial skills in students while working in a team, creative skills by demonstrating novel engineering solutions, communication skills while presenting their end application and an awareness of social and ethical ramifications of their work.
CEO 4	To teach writing a technical document and help students to represent the professional literature.

5.2 COURSE LEARNING OUTCOMES - SEMESTER VII

a	Ability to acquire the thinking pattern which explores wide range of topics for innovation.
b	Ability to learn the technique of analysis, classification and then selection of appropriate literature.
c	Ability to learn to formulate a worthwhile problem statement and the methodology to apply the problem solving approaches.
d	Ability to learn to communicate effectively with others to discuss technical, social needs and find an engineering solution. At the same time, imbibing the virtue of team-spirit.
e	Ability to develop skills for writing a technical document.
f	Ability to practicing to maintain and prepare a Project Report/ Synopsis Report of the work done as an evidence of an ability to work independently and in a group for the given task.

5.3 MAPPING COURSE OBJECTIVES WITH LEARNING OUTCOMES - SEMESTER VII

Course Learning Outcomes							
Course Educational Objectives		**a**	**b**	**c**	**d**	**e**	**f**
	1	X	X	X	X		X
	2	X			X		
	3				X	X	
	4			X	X		X

5.4 COURSE EDUCATIONAL OBJECTIVES (CEO) - SEMESTER VIII

CEO 1	To train students to apply the scientific methods and the problem solving approaches studied in earlier courses to meet the project goals with the use of advanced software tools, applications and hardware tools.
CEO 2	To help students to develop system design skills and utilize the available resources in terms of faculty, staff, library, laboratory etc. in an optimum manner for successful project implementation.
CEO 3	To develop managerial skills in students while working in a team, creative skills by demonstrating novel engineering solutions, communication skills while presenting their end application and an awareness of social and ethical ramifications of their work.
CEO 4	To teach writing a technical document and help students to represent the professional literature.

5.5 COURSE LEARNING OUTCOMES - SEMESTER VIII

a	Ability to learn the methodology to apply the problem solving approaches and develop system design skills.
b	Ability to communicate effectively with others to discuss technical, social needs and find an engineering solution.
c	Ability to develop skills for writing a technical document.
d	Ability to learn practicing to maintain and prepare a Project Report/Synopsis Report of the work done as an evidence of an ability to work independently and in a group for the given task.
e	Ability to prove themselves with performance with emphasis on effort, organization, creativity and initiative. Ability to work as a team and thereby instilling good work ethics in students.
f	Ability to enhance employability through the evidence of independent work.

5.6 MAPPING COURSE OBJECTIVES WITH LEARNING OUTCOMES - SEMESTER VIII

Course Learning Outcomes							
Course Educational Objectives		**a**	**b**	**c**	**d**	**e**	**f**
	1	X	X				
	2	**X**	X				
	3		X			X	X
	4			X	X		

6. ASSESSMENT

Projects are assessed according to several criteria and at several points during the year. This assessment will be based both on your report and on presentations. The assessment criteria are as follows:

i. **Project goals and achievements (40%)**
Evaluation of the difficulty of the goals and whether the goals were achieved will be done first. Although projects will differ, it is always extremely important to set goals at the start of a project and work towards these goals. It is believed that the project goals are set in collaboration with the guide and an effort should be made to establish a realistic scope for the project. In some cases, it may become apparent as the project progresses that the original goals need to be adjusted and a modified set of goals must be set.

ii. Final report quality and content (20%)
This is an evaluation of the quality of the final report based on the report format, the clarity of communication and the analytical content.

iii. **Student organization, creativity and effort (40%)**
This portion of the evaluation reflects the student's performance, with emphasis on effort, organization, creativity and initiative.

7. APPENDIX A: GENERAL PROJECT INFORMATION

7.1 DEADLINES

Deliverable	**Provisional Dates**
Submit your 'Project Proposal'	
Deliver your 'Interim Presentation'	
Submit your final report	
Deliver your final presentation	
Demonstrate your work	

The provisional dates will be announced by the project coordinator and will be filled by the student in the respective column.

7.2 REPORT LENGTH

- Your final report, in PDF format, must not exceed either 40 pages or 12,000 words.
- The report page layout should be A4, using 12 Point Times New Roman, 1.5 line spacing, and leaving left and right margins of roughly 25mm. You can use Latex or any other equivalent tool to prepare your report: consult with your mentor first. You can refer to the following link for the Latex template:

- This total includes everything in the report: the front page, table of contents, contents, index, figures, references etc.
- Appendix (source code, models, planning documents and records, software testing details and results, experiment details and results) does not contribute to this page count.
- Overdue, oversized or otherwise unsatisfactory reports will be penalized while evaluating.
- You will also have to submit a soft copy of the entire report in a CD which could also include the journal papers referred e.g. IEEE papers, a working video of your project etc.

8. APPENDIX B: TYPICAL STRUCTURE OF THE PROPOSAL FORM

Once the department allots every group with a domain and the relevant project guide, the respective group is supposed to submit a formal project proposal form. This form should contain details of the planned project as per the guidelines given below. Depending on the decision of the project guide, necessary changes will be recommended and the project will be finalised. A classic proposal form should contain the following fields:

- Domain
- Project Guide
- Title of Project
- Names of the project partners
- Abstract (up to 500 words)
- References (maximum 5)

9. APPENDIX C: TYPICAL STRUCTURE OF THE FINAL PROJECT REPORT

Title Page

This should contain the following information:

1. Title of the project
2. Names of: Students & Project guide
3. Degree and department
4. College name and logo
5. Academic year

Note that the title page should not show a page number.

Abstract

This should be not more than one page in length. The abstract should allow the reader who is unfamiliar with the work to gain a swift and accurate impression of what the project is about, how it arose and what has been achieved.

Contents List

This should give a complete list of what the report contains starting with the abstract (the title page is not included in the contents list).

List of Tables/Figures

If the report contains figures or tables a list of these should be provided. The list should give the table or figure number, the title of the table or figure and the page number. If only a few tables and figures are present, they may be treated on one page. Remember that all figures and tables used must be referred to in the text. For example "The class diagram shown in Figure 2.1 ....."

Acknowledgements

Follow brevity while writing acknowledgements. You can extend your appreciation to all those who have helped you in your project (typically your guide).

Introduction/Background

This section introduces the reader to the subject area in the project. It may include such things as:

1. How the need for the system etc. was identified,
2. The nature of the application area

A brief outline of the project work should also be included. Some evidence of reading around the area is expected. This reading could be outlined in either a References Section or a Bibliography Section. A plan of organization for the project should be stated in the introduction section.

Methodology (Main Body of the Report)

This section should/could be divided into a number of chapters and sub-chapters. Each of these should contain a reasonably separate topic of discussion and be arranged in a logical sequence. The linkage between chapters should be stated clearly at the beginning and/or the end of each chapter to show the relationships between chapters.

Conclusion

The conclusion chapter should state briefly the achievements of the project, the conclusions and suggestions for further work.

Appendices

These should be used for reference material, such as selected pieces of research data and other information which is too bulky, or would detract from the flow of the text, if included in the main body of the document. Try to make reference material that will be consulted from many different places in the document and appendix. Otherwise, put the information into a figure or table and keep it close to the text that refers to it.

References and Bibliography

There should always be a list of all books, articles and technical resources consulted. The use of all source material should be explicit in the report. This means that normally ever item in the

reference list will be referred to in the report and every item mentioned in the report will have an entry in the reference list. It is of utmost importance that references are cited appropriately.

10.APPENDIX D: LOGBOOK

SEMESTER VII

SEM VII: WEEK - 01

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VII: WEEK - 02

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VII: WEEK - 03

Date: From _____ To: _____

Progress Achieved:

_____	Guide's-reviews:_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VII: WEEK - 04

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VII: WEEK - 05

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VII: WEEK - 06

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VII: WEEK - 07

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VII: WEEK - 08

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VII: WEEK - 09

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VII: WEEK - 10

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VII: WEEK - 11

Date: From _____ To: _____

Progress Achieved:

_____	Guide's-reviews:_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VII: WEEK - 12

Date: From _____ To: _____

Progress Achieved:

_____	Guide's-reviews:_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VII: WEEK - 13

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VII: WEEK - 14

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VII: WEEK - 15

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEMESTER VIII

SEM VIII: WEEK - 01

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VIII: WEEK - 02

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VIII: WEEK - 03

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VIII: WEEK - 04

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VIII: WEEK - 05

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VIII: WEEK - 06

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VIII: WEEK - 07

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VIII: WEEK - 08

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VIII: WEEK - 09

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VIII: WEEK - 10

Date: From _____ To: _____

Progress Achieved:

_____	Guide's-reviews:_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VIII: WEEK - 11

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VIII: WEEK - 12

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VIII: WEEK - 13

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VIII: WEEK - 14

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

SEM VIII: WEEK - 15

Date: From _____ To: _____

Progress Achieved:

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	Guide's-reviews:_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Signature:
Team Member 1:
Team Member 2:
Team Member 3:
Team Member 4:

Project guide:
Signature:
Date:

11.APPENDIX E: POLICY ON PLAGIARISM

Everything you write must be original. No cut and paste is accepted, even if you acknowledge the source. The definition is: No two sentences should be the same. It is usually unacceptable when two or more consecutive sentences are the same, though of course it should be judged case by case. If a figure is not drawn by yourself, you should acknowledge the source in the legend. [When you publish a book, you need to ask the author of the figure for permission to reprint the figure in your book.] If a survey is done jointly by two students, then in the report, you should acknowledge at the beginning of the survey that it is written by two students jointly. For more details on the plagiarism policy, kindly refer to the IEEE website.

12.APPENDIX F: SURVEY FORM

Through this project survey we are asking graduating students to evaluate their experience as students at Sardar Patel Institute of Technology. All responses will be kept confidential and used as an internal assessment tool to improve our final year graduation programs. We appreciate your help in filling out this survey. Thank you in advance.

Team Member 1:

Name: _____

College ID: _____ Email: _____

Mobile No: _____

Team Member 2:

Name: _____

College ID: _____ Email: _____

Mobile No: _____

Team Member 3:

Name: _____

College ID: _____ Email: _____

Mobile No: _____

Team Member 4:

Name: _____

College ID: _____ Email: _____

Mobile No: _____

My project has given me the ability to	To what degree your project meets the outcomes																			
	Excellent				VeryGood				Good				Poor				Very Poor			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
a. Apply knowledge of mathematics, science, and engineering																				
b. Design and conduct experiments, and collect, analyse and interpret data																				
c. Design a system or component to meet desired needs subject to constraints																				
d. Function in a team and take responsibilities by sharing work and value viewpoints																				
e. Identify, formulate and solve engineering problems																				
f. Communicate effectively - oral and written																				
g. Understand the impact of engineering solutions in a global context																				
h. Recognize the need for and demonstrate ability to engage in lifelong learning																				
i. Know about contemporary issues relevant to engineering																				
j. Use techniques, skills and modern engineering tools																				

Facilities and Support

Facilities provided by the college	To what degree your project meets the outcomes																			
	Strongly Agree				Agree				Neutral				Disagree				Strongly Disagree			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
a. The available hardware equipment and software tools have been sufficient to accomplish my project																				
b. The administration helps inproviding new hardware equipment and software tools																				
c. The staff support has been satisfactory																				

General Comments:

_____

_____

13.DETAILS OF PUBLICATIONS / PATENTS / AWARDS

Project Evaluation Sheet-I

Bhartiya **Vidya Bhavan's**

Sardar Patel Institute Of Technology

Andheri (W), Mumbai- 58.

Project Progress Evaluation Sheet

Subject : Project – I Sem : VII

Branch : B. E. EXTC Academic Year:

Sr. No.	Name of the students	Title of the Project	Understanding of the Objectives of the project	Progress of the project as per proposal	Quality of work done till date	PEO Satisfied (Please Refer Dept PEO)

Internal Examiner: _____Sign: _____

External Examiner: _____Sign: _____

Project Evaluation Sheet-II

Bhartiya **Vidya Bhavan's**

Sardar Patel Institute Of Technology

Andheri (W), Mumbai- 58.

Project Progress Evaluation Sheet

Subject : Project – II Sem : VIII

Branch : B. E. EXTC Academic Year:

Sr. No.	Name of the students	Title of the Project	Understanding of the Objectives of the project	Progress of the project as per proposal	Quality of work done till date	PEO Satisfied (Please Refer Dept PEO)

Internal Examiner: _____Sign: _____

External Examiner: _____Sign: _____

NOTES

NOTES

NOTES

FYP HANDBOOK