MONASH University
Engineering

4th year Projects: Overview

The 4th year research project provides students with a challenging opportunity to plan, undertake and report on a limited program of independent research into a real Engineering problem. The project can involve different tasks including a review of the literature, laboratory experimentation, analytical work, numerical simulations, and industrial involvement. The project can also involve the development of a design and presentation of a prototype.

Different departments have different requirements for the projects, so that the guidelines presented in these resources are general in nature. You must always check the particular requirements of your department so that you can then apply these guidelines successfully.

4th year Projects: Project Proposal

Requirements

The **length** of the Project Proposal varies from department to department. For example, in Mechanical Engineering the proposal is approximately 800 words or 2 A4 pages, while in Civil Engineering the proposal is about 3 pages long.

In Electrical Engineering, you do not write a research proposal. Instead you present a plan of your design in a written Requirements Analysis and Design document to describe the scope of your project and the items to be delivered.

Guidelines

The **purpose** of the proposal is:

- to explain the need for the project, and
- to plan the project. Often this can help to identify any potential problems you may have in carrying out the work, and you can then develop contingency plans.

In your proposal, you need to answer the following questions:

- **Why** undertake the project? Students should be able to explain the relevance of the work and how it relates to research/practice needs in the discipline.

- **What** will be the scope of the project? Students should be able to develop a concise statement of the specific aims/objectives of the work.

- **How** will the project be undertaken? Students should be able to describe the main tasks to be undertaken and identify the resources required to complete the project.

- **When** will the work be undertaken? Students should be able to develop a work plan for the project which identifies the timing for each primary task.

In any proposal, you always have to consider your particular project in order to decide for yourself what is the best way to organise your information into logical sections and then to devise appropriate headings for these sections in your proposal. Typical **sections** in a proposal and their **contents** are outlined below.

Title - provides a concise, accurate and informative title which immediately orientates your reader to the focus of your project.

Introduction – explains **why** you are doing the project. It provides a brief overview of the background to the project and establishes a particular area, or problem, that needs to be investigated further. It provides a clear statement of the topic of the proposed work.

Aims - clearly states the aims of the study (to measure, to devise, to design, to establish, to identify, etc). If there is a general aim, try to establish a number of specific aims as well. Aims can also be incorporated in the **Introduction**.

Methodology - outlines **how** the project will be undertaken (by conducting a series of experiments; by developing a model; by conducting a survey of engineering practice; by reading and critically reviewing a number of research papers; by doing fieldwork; etc).

Project Plan – describes **what** you will do. It is a plan of the tasks which will enable you to achieve the stated aims of your project. To devise a plan, you need to break the project down into a series of steps or stages, and you then outline the tasks within each stage (for example, In stage 1, I will devise a survey which…..; carry out the preliminary experiments; design the …….. In Stage 2, I will interview three engineers; carry out further experiments; build the ….). If possible, you could also identify concrete outcomes for each stage of the project (eg, Outcomes of stage 1

are a series of graphs showing ……The outcome of stage 2 is a brief review of the research papers on ..…… . Outcomes of stage 3 are the collection and analysis of data on the effect of ……). Try to provide as much detail as possible in your plan as this planning should help you to carry out the project work more effectively and efficiently.

The project plan should also include a **timetable** in which you plan the timing for the main tasks. This timetable can help to keep you on track throughout the project. The plan may also include a **list of the resources** required to do the project.

Potential contributions of the proposed project - summarises, perhaps in point form, the main areas where your project will make a contribution. Examples of potential contributions are: The study will provide an estimation of ……; recommendations for …..; an understanding of ….; an improved design for…; further knowledge of ……..

Appendices - provide more detailed information than required in the proposal such as details of equipment specifications, pilot study data or research design or analytical models to be used. You may not need to have any appendices in your Project Proposal.