



Petra Gratton  
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# Achieving Success with the Engineering Dissertation

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# Preface

## The Dissertation and This Book

The high point of any engineering degree is the dissertation, also called variously the “major project”, “capstone project” and a few other things. This is a step forward in working as an engineering professional: being given a task to solve, where there’s not a clear method to complete it, nor a known right answer. This can be both exciting and frightening; engineers train to be able to solve real engineering problems, but actually doing so, not knowing what the answer is, isn’t easy.

We are both engineers, and years ago undertook dissertations on our own degrees at Brunel University, the University of Southampton and the University of Surrey. After entering industry, somehow, we both got lured back into academia, which has resulted in supervising and marking many hundreds of dissertations over nearly four decades between us. This book is the one we wanted for our own students, offering the best advice we can give on not just how to do well in the dissertation, but how to use it as a springboard into a successful career.

In preparing this, we’d like to thank our families and our many dissertation students—we’ve learned about the topic ourselves from every one of them.

## The Concepts in *Achieving Success*

Everybody wants dissertations to go well, and they are also a key part of developing as a professional engineer. That involves preparing before the project, and using what was done and learned into the job search and whilst starting the first job.

Because engineering projects are team efforts, we have focused on the important relationship between the student and their supervisor—and also, *the project client*—somebody who is providing support and has an active interest in the project outcome. There won’t always be a client, or sometimes either the student or the supervisor will “wear two hats” and take that role, but it’s a very useful concept.

There are many engineering disciplines, and we've tried to vary from which disciplines examples are drawn; if these aren't in your own field—please read and try and learn from them anyhow: good practices are usually universal.

## The Illustrations

Engineering writing needs illustrations, equations, graphs, drawings and pictures. *Achieving Success* uses our own diagrams and photographs, as well as a few from other sources. We wanted to make this book visually attractive and enjoyable to read; with the help of the Heath Robinson Museum in Pinner, we've used a lot of illustrations from William Heath Robinson, whose name is synonymous with complex engineering and knotted string, and whose brilliant art is well known to many engineers. Clearly, pictures like Fig. 1 aren't here as serious illustrations of what you should be doing in your university work, but they are there to improve the readability, give you something to think about, and we hope you enjoy them. If you'd like to learn a little more about Heath Robinson's life and work, turn to Appendix D. (If it's not obvious—we're fans!) If you'd like to learn more, there are also many other books of his work, as well as the museum, and it's not unusual to see exhibitions of his art appear around the world.

## How to Use *Achieving Success*

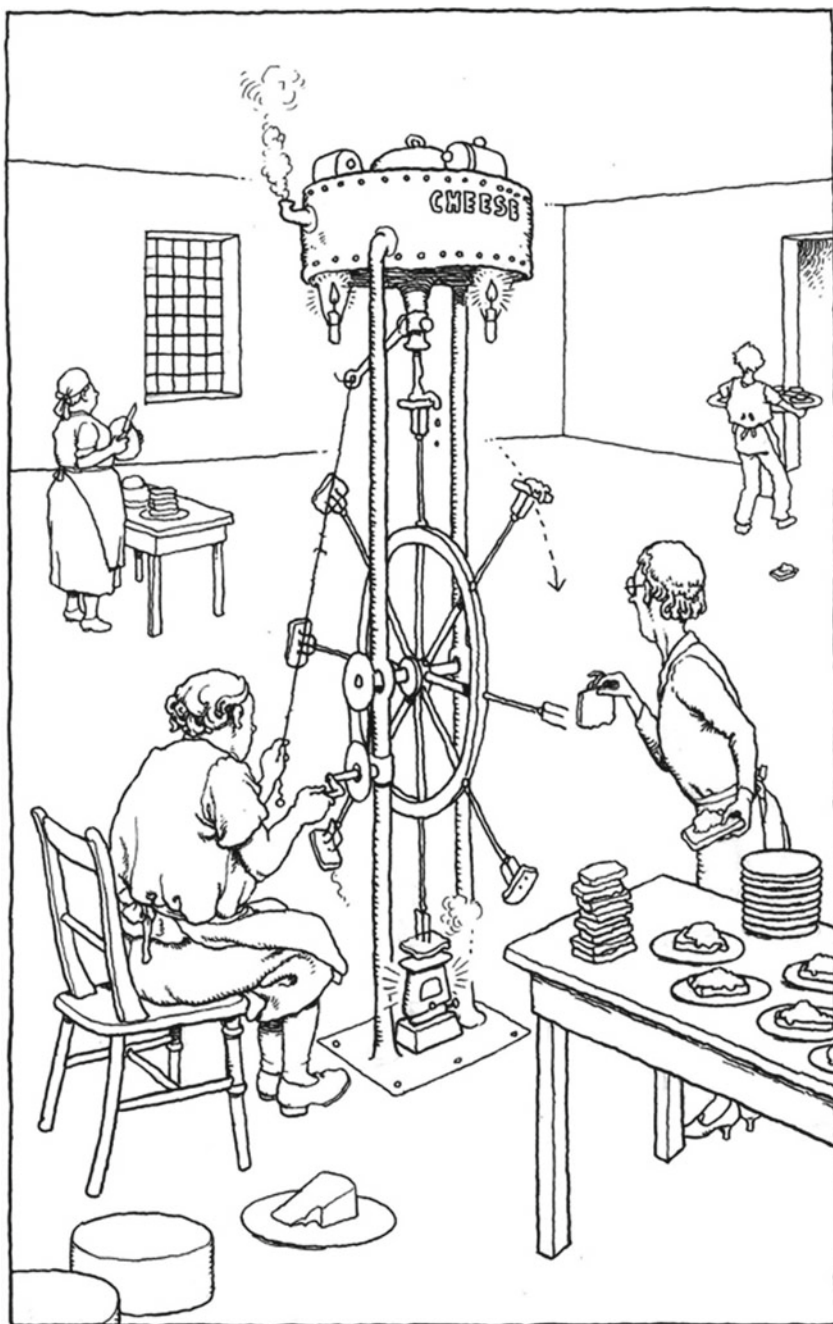
Ideally, start using this book the year before starting the dissertation—Chaps. 1 to 4 cover preparation for the project. Appendix C also will show how a project can be used to enter national or international competitions. Chapters 5 to 8 are for the early part of the project, once there's a topic and supervisor. Students might like to suggest that their supervisor and (if there is one) client read the table of contents and Chaps. 4–8, although these cover more ground than any single project, so will need using selectively.

Chapters 9 to 14 cover the central core of the project work and report, towards the final report presentation. There's a lot of detail that here users should expect to jump around these sections—as well as, for example, probably using Appendix A on referencing.

Finally, Chaps. 15 and 16 are about how to use the dissertation to improve your chances of entering a good graduate career, and then about the possibility of publishing your work outside the University course.

Appendices A–C are there for reference throughout the project—and other parts of any engineering degree course. Appendix D is about William Heath Robinson.

*Achieving Success* is written in a fairly informal style—this is to make it more readable, but of course a dissertation report itself needs to be much more formal.



**Fig. 1** Mr William Heath Robinson's Welsh rarebit (cheese-on-toast) machine: fuel for the dissertation?

## Good Fortune

We wish you success with your dissertation, your degree and your onwards career. We've tried to give you the best advice we can in this book, and hope it's good. We would love to hear your feedback about how useful it was, how you've used it, and anything you think could be improved. We're very easy to contact through either Brunel University London, Cranfield University or the publisher. We also tweet about the subject matter at [@ASEDtweets](#).

Uxbridge, UK  
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