SOLENT
UNIVERSITY

Media Technology Project Handbook

Full time, final year, undergraduate students

MED601

For use in academic year 2021-22

Foreword

This document is intended to give the long-format, structured guidance for your project submissions in your final year. It is intended to be exhaustive, however there are instances where you will need to consult with project supervisors, or the module leaders for help and advice. Please do not hesistate to do so.

If you find inconsistancy in the documentation, please alert and consult the module leader in good time.

Very best of luck with your project and submissions, and in your future careers.

Lee Davison

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CHAPTER 1

Introduction

This module is designed to provide the student with the opportunity to conduct a self-managed project of significant scale and complexity, in which the student creates a project outcome which provides a solution to an identified technical problem or challenge.

The project should reflect theory and practice drawn from the named award being undertaken by the student and should also reflect their particular interests. The project may focus on the areas of technical development, research or operational practice, but each project must aim to address a specifically identified problem, research question or technical challenge.

The output of the project could take the form of hardware, software, practical implementation of a new or experimental technique, or a research dataset. Students will be encouraged to undertake projects that are related to real world applications, and may work on live briefs from industry partners. The completed project should reflect the student's ability to plan, execute and present the findings from an endeavour of their own choosing.

CHAPTER 2

Learning Outcomes

In order to complete the module, you must demonstrate the following skills:

Knowledge and understanding

K1 Independently access relevant information, ideas and evidence from a wide range of secondary and primary sources in the solution of engineering problems.

Cognitive skills

C1 Evaluate, select and apply relevant engineering principles, processes and research methods in the solution of engineering problems.

Practical and professional skills

P1 Investigate and define a problem and identify constraints including resource management, feasibility, environmental and sustainability limitations, health and safety and risk assessment issues.

Transferrable and key skills

T1 Communicate technical information clearly and concisely in written and verbal formats.

CHAPTER 3

Project Operation and Management

Projects divide into the following broad catagories:

- those that involve the **design and build** of a technical product
- those that involve experimental design based on techniques such as **computer-based simuilation or mathmatical modelling.**
- those that involve design and implementation of a **new or experimental technique.**
- those that involve the **testing and proving of a theory or concept** using scientific research techniques.

As with other commercially-based and academic projects, the final year project consists of a number of key phases:

- itentification of the problem to be solved
- selection of suitable tools and methods with which to conduct the work
- conduct of the project work
- reporting on the process

Project management is about planning these phases over time, and ensuring that resources are available for each one.

Project monitoring and control are concerned with recording the progress of the project and using a pre-determined method to ensure that project milestones are completed on time.

While carrying out the four phases listed above, you will also be expected to demonstrate the ability to:

- synthesise theory and practice in providing interesting and novel solutions
- justify the choices that are made at each stage of the project
- evaluate the fitness for purpose of the chosen solution
- evaluate whether the tools and methods used were appropriate
- reflect on each aspect of the development process

All of these skills are assessed at various times during the module.

There are two distinct areas within the project:

- there is the "product" - this is what you actually create, and might be a hardware unit, a software system and associated documentation, a computer based simulation which solves a complex problem, or the results of a research investigation.

and

- there is the "process" that you use to research, plan and monitor the creation of the "product", including the selection of appropriate methods, tools and techniques.

As part of your final report, you will be expected to evaluate your "product" in terms of how well it satisfies your original objectives, and also to review the tools and techniques you used during the process.

In assessment terms, the process you use to conduct your project is at least as important as the product you create. It is therefore important that you maintain careful records in a logbook and library throughout the project to assist you in writing up the project process.

One of the key elements for any report is style. You are strongly advised to write in the third person rather than the first person, using the passive voice. More information on this is provided on SOL and through the Library services on the Portal.

Project mangement tools

Undertaking good project management requires you to utilise project management tools and demonstrate that you have followed the requirements of the

organisation for which you are working. The Media Technology Project has a minimum expectation of use and evidence of project management tools which forms part of the assessment criteria for various stages of the project. Evidence of project planning will form the appendices to the Definition report as follows:

1. **Project Proposal**

   You are required to have an agreed project proposal, which is a 1-page summary of your project topic and objectives, which must be agreed and signed off by your supervisor. This forms part of the record of your project progress, and non-completion will have a negative effect on your grade for the project definition.

2. **Project Supervision Record**

   It is a requirement to demonstrate sustained progress on your project and communication with your supervisor, and agree tasks and objectives. It is therefore a requirement that you complete a supervision record form each time you meet with your supervisor. This should be signed by both of you and kept by you – you must include these in the appendices for both definition and final report submission, with at least two completed for the Definition report. Non-completion will have a negative effect on your grade.

3. **Time Plan**

   All projects must demonstrably make use of time planning in the form of a Gantt chart, plus associated justification of the time plan. This is expected to be revised at different stages of the project to reflect changes in the project timing and updated objectives.

   A copy of the initial time plan should be included in the appendices to the Definition report, and copies of ALL time plans should be included with the Final report, with a discussion and justification of any changes in the time plan.

4. **Ethical Review**

   All projects must be carried out within the framework of the University's Ethics Policy, see section 2S of the Academic Handbook (available via the portal), and must address the following five questions.

   ALL projects must undergo an Ethics Review as part of the definition stage – projects without an Ethics Review will not be permitted to proceed. A copy of the Ethics Release form should be included in the appendices of the Definition Report and of the Final Report. Non-completion will have a negative impact on the grade.

5. **Logbook**

   It is good scientific practice to maintain a logbook throughout any project. This forms the basis for your write-up, is a place to document project progress in any form, and forms the basis of defence for any Intellectual Property cases you might be involved in, particularly if you

are aiming to protect your IP. It is therefore a requirement for you to maintain a technical logbook, noting all progress made in the project. This should be brought to supervision meetings and signed by the supervisor at each meeting. Sight of this logbook forms part of the assessment criteria for the project management element of the Definition report. You will also submit the logbook with the final project report to demonstrate evidence of sustained project progress.

CHAPTER 4

Project Selection

The project process commences with the selection of a topic area, *as early as possible.*

> Students will be encouraged to develop their own project topic, but several suitable topics have been identified by unit supervisors, for which you may 'pitch'. Those who have been unable to identify a suitable topic by the end of week three of the academic year may be allocated a title and supervisor.

To make a start on the process of choosing a topic for the project, the following questions may be of help:

- What aspects of the course would I like to pursue further in a practical way?
- How will my project topic selection relate to my degree pathway?
- Will my project satisfy the unit outcomes?
- Can I choose a project that will help me to get my first / next job?
- What information and opportunities to talk to specific people and to enter other organisations would I like to have?
- What problem areas exist in my job, department or organisation that I would like to see tackled?
- What industry-related problems do I consider as being important for investigation?
- What practical outcome would I like to see achieved as the result of a study and investigation?

Once the project has bneen identified, you will have to prepare a more detailed project *definition*

4.1 Intellectual Property Rights (IPR)

The University Policy states that all work produced by students as part of their course remains the property of the student unless there is a written agreement to the contrary. Students enrolled with the University will be required to assign their IP to the University before they become involved in any activity in which the University may require use or control of the IP for teaching, research or commercialisation

The exception to the above is where it is clear that the IPR rests with the 3rd party; such as a part time student doing work for his or her employer.

> Your project is not a legally binding contract and under no circumstances does your project subject any of the Parties to liability for breach, whether material or minor, of contract or any other liability under national or international law or any other applicable law.

If you do a project for a third party the expectation of the third party must be that you will not produce anything for them. If you do produce something that they can use that is a bonus for them.

The university will abide by reasonable non-disclosure agreements where company confidential or sensitive information is included in the project. The university **must** reserve the right to show all project documentation to the supervisor, second marker, project co-ordinator and external examiners and any member of the Academic Standards and Quality Service and Academic Misconduct panellists where such report is suspected of Academic Misconduct.

4.2 Academic Misconduct

Any submissions must be students' own work and, where facts or ideas have been used from other sources, these sources must be appropriately referenced using the Harvard Referencing style. The University's Academic Handbook includes the definitions of all practices that will be deemed to constitute academic misconduct. Students should check this before submitting their work.

Procedures relating to student academic misconduct are available from the student Portal.

CHAPTER 5

Project Phases

The following summary tables should be read in conjunction with the notes in the remainder of this section.

The project management strategy is designed to reflect the practice of research and development in industry, and three assessment elements are used within the unit to reflect the core stages of project progress.

- The initial phase of the project is used to define the problem to be solved, set out the scope and purpose of the project (including any business considerations where appropriate) and to assess potential solutions. This should result in the submission of a Project Definition in the form of a written report which defines the theoretical background to the project, sets project aims and objectives, identifies and evaluates key options for approaches and specifies a method which the student will adopt to solve the project 'problem'.

- The second (main) phase of the project involves undertaking the work to solve the problem set out in phase one, using appropriate tools and techniques. At the end of the project a Project Report should be submitted. The project report should take the approach of technical documentation and objective analysis of the project from inception to completion. This includes describing and analysing the project methods used, reviewing and discussing the progress of the project against initial aims, objectives and planning, evidencing results of the project output from testing, assessing the fitness for purpose of project outputs and drawing overall conclusions regarding the success of the solution to the project problem.

- The final stage of the project is a project exhibition which will be used to provide the opportunity for students to disseminate the outcomes from their projects to a wider audience. This may involve discussions with other students and prospective employers. This will be an online exhibition, in which the student will present their project in the form of both an academic poster and a short video explaining key aspects of the project, evidencing the output and answering set questions on the project conduct.

The student will be assessed on their ability to present and explain their project clearly and concisely.

- Subject to COVID-19 restrictions, Students will also present their project in the format of a 'trade show', with a stand exhibiting their project, supported by posters and other visual aids. This will be non-assessed, but an opportunity to present the project in a public forum with representatives from industry, members of the staff and public acting as customers at the exhibition.

5.1 Brief summary of project phases

Phase 1 - Project Definition

This happens in term one, duriung weeks 1 to 7, and you should budget a minimum of 85 hours of work time.

Typical Activities

The typical activities of this phase are:

- Define the scope and context of the problem
- Identify and specify research questions
- Assess the market or customer needs and Develop a business case
- Define aims and objectives
- Specify requirements
- Study underpinning theory
- Propose possible solutions
- Identify risks and project unknowns
- Identify Ethical, professional and legal issues
- Derive initial plan/methodology

Deadlines & Deliverables

By **29/10/2021** at the latest you should have produced and signed a Project Proposal (one-pager, not graded):

- 1 page A4 - a brief summary of the project
- Include aims, objectives, proposed method.

- Signed by supervisor and student

The proposal should be a general description of the problem and proposed solution, with an outline of the aims and objective inherent.

Failing to complete this in a timely manner means that you may be assigned a supervisor and/or a project.

By **DATE** (assignment deadline) you should produce a Project Definition Report (20%):

- 2000 words
- background
- Options analysis
- Method statement
- Technical specification
- A copy of the Project Proposal
- Project supervision record
- Time plan
- Ethics review

The definition Report is used to build upon the idea of your project, and creates a proper plan for undertaking it. It should be a discussion of vthe project context and scope, deriving the aims and objectives by analysis of existing theory and background. You should examine existing systems or approaches to the problem, and provide an overview of how these approaches affect the project path, and which options are a good choice. You should produce a technical specification for the outcomes of the product or project, create a proposed method and project plan, and include supporting and subsidiary information such as ethical review, risk analysis.

The report should be fully supported by good quality citations from the field of study.

Phase 2 - Project Implementation & Documentation

This happens throught the year, after the Definition submission, and is the phase concerning your actual project work. It is recommended that you spend a **minimum** of 200 hours, if your project does not comprise of this level of commitment, it likely needs to be revised.

Typical Activities

The typical activities of this phase are:

- Specify system requirements and high level design or
- Select appropriate tools and methods to be applied
- Design and implement according to project process model
- Fully document design and build process
- Conduct tests
- Analyse performance against initial specification
- Write up project report.

Deadlines & Deliverables

TODO: Date

By DATE (assignment deadline) you should submit your Final Report (60%):

- 10,000 words (±10%)
- Background, survey of literature and the state-of-the-art
- Full detail of project development, implementation, testing, and results
- 2 bound copies to be submitted as well as an online copy
- Submit project title and synopsis for project exhibition

The project report itself is documentation of the project process, from the inception of the idea, through background reasearch, detailed method, and results an analysis. It should also include an evaluation section detailing the limitations that were found during the researc, and a discussion and conclusion giving analysis of the results and their implications.

Phase 3 - Project presentation

This happens toward the end of the academic year, and is typically the last assessment you'll do. It's recommended to spend a minimum of 15 hourso nthis part of the project:

- Design an academic stlyed poster for presentation
- Make any final adjustments to product
- Adapt or create any live demos that might be appropriate

Deadlines & Deliverables

TODO: Date

By DATE (assignment deadline) you should produce an A1 poster to present on Poster day, at a date to be confirmed.

5.2 Phase one: Project definition

The Project Definition phase consists of the production of a project proposal and a project definition report, which will include a project specification and a detailed time plan.

Starting the project: The Project Proposal

For your Project Proposal, you will need to propose a project topic and provide an overview of the project explaining the background to the idea and some initial aims and objectives. This will take the form of a single page outline of your project.

The proposal is designed to ensure that if the project is completed according to plan, it will meet the criteria for level 6 of an undergraduate course. You must find an appropriate supervisor for the project and they must sign off on the initial proposal.

The final choice of project will be the result of a four-way consultation process between you, the project co-ordinator, your project supervisor and (where appropriate) your employer or other industrial partner.

The outline proposal is not marked, but forms the basis of your project agreement with your supervisor. You must not start your project until the topic has been agreed and you have a supervisor. You should try to start the process off as soon as possible, and the outline proposal should be signed off by your supervisor and handed to the project co-ordinator by the end of the first three weeks of the unit.

> Students who have not agreed and signed proposals by the 29$^{\text{th}}$ of October may be assigned a project idea and supervisor.

The outline proposal should consist of no more than one side of A4, with the following sections:

- Student name
- Project title
- Description of proposed project method
- Aims and outline objectives

You should include a space at the bottom for both you and the supervisor to sign.

> You have not secured a supervisor for your project until both you and the supervisor have agreed the topic, and the proposal is signed and submitted. Supervisors will not reserve spaces for individuals without signed proposals, and will operate on a first-come, first-served basis.

5.3 Assessment Element one: The Definition Report

The Project Definition document should explain, in detail, what the project is expected to achieve and identify the options (or possible solutions) that may lead to the desired outcomes. Essentially it can be expressed as the question; "What am I going to do?".

As this phase of the project is also about feasibility, it addresses some issues of enabling technology and systems. In other words it answers the questions; "Are there methods, technologies and systems that can be used to solve this problem?", and if so, "What is my strategy for using them?".

Your project definition requires background research to determine the nature of the problem, and to investigate potential solutions. This research must include an analysis of the theoretical background for the project and an investigation to establish what work has already been carried out in the chosen subject area.

The result of your background research should provide the reader with a summary of the technical background for your project, so that they can understand the decisions that you make in the options analysis and conclusion/method statement. It should also give a 'paper trail' of where you have sourced your information from, by appropriately citing all sources of information, demonstrating that your work is based on good, current research.

All parts of your reports should cite references, not just the background. Where information sources are not cited, this may result in a charge of plagiarism, and will certainly affect your grade, as research and theory is core to all grading criteria.

Doing the research for the background also enables the setting and justification of clear aims and objectives for the complete project.

The report should demonstrate that your project is viable and should give both you and your supervisor confidence in your ability to complete the project successfully. The report should be no longer than 2,000 words/10 pagesincluding references. It should demonstrate that you have already done a considerable amount of work (minimum 100 hours).

You should evidence use of project management tools in your report, including copies of your signed project proposal, risk assessment, ethics release, and time plan (Gantt chart). These form evidence of project management, and therefore are important to the assessment criteria.

The report follows the normal structure of most technical reports and indicatively *could* contain the following sections:

1. Introduction
2. Aims and objectives
3. Background
4. Options analysis
5. Conclusion and method statement
6. References
7. **Technical specification**
8. **Risk assessment**
9. **Ethics statement**
10. **Time plan**
11. **Project proposal**

Items in **bold** can be placed in the appendices. Please do not place anthing else in the appendices.

> The definition is an important assignment in the Media Technology Project module, and is worth 20% of the final grade. It bust be submitterd by DATE in PDF format *only*.

5.4 Assessment Element two: Implementation, Documentation, and Evalution

Before you start doing any work on the "product", you should ask yourself the following questions:

- When I get to the end of the work, how am I going to test whether what I have produced matches my aims and objectives?
- How am I going to just whether the method I used to complete the project was the best one?

This process is likely to involve practical work such as conducting technology proving or a pilot survey. This can be something fast and dirty, and it doesn't have to triel the entire project idea, perhaps just the more contentious or unreliable elements.

This phase of the project is about applying the tools, methods and techniques previously selected, to the solution of the problem, in an effective way. This may involve design, build and test, systems modelling or experimental work in a business context.

The final part of the project is about evaluating both the "product" and the "process", and can be expressed as a series of questions:

For the "product"

- Is this result reliable and fit for purpose?
- Does what I produced match with my original intentions and expectations?
- How can I demonstrate the extent to which it does?
- Does it fulfil the technical specification?

For the "process"

- Could this be doen in a better way?
- Where did I have to move away from what I originally planned to do?
- Why did I have to?
- Could I have forseen the problems?
- Should I have?
- How did I deal with these problems?
- What was the impact to the integrity of the project?

Answering these questions involveds comparing the original theory, which led to the selection of your approach, to the experiance and knowledge gained through the conduct of the project

Your final report is the complete writeup of the project from start to finish. It must be a stand-alone report – do not expect that a reader will be aware of your project or have read your definition. It must therefore introduce the project concept and aims before going into the detail of how the project was implemented.

> Two bound copies of the project final report must be submitted to the assignment office. An electronic copy must also be submitted by 4pm on the same date.

The final report of around 10,000 words (±10%) should be prepared in accordance with the published tecnical document guidelines in the appendix. The main body of the text will likely contain the following:

1. **Abstract**

   This should be a short synopsis (≈250 words) of the project aims and what was achieved.

2. **Introduction, Aims and Objectives**

   This should introduce the project to someone who is finding out about this project for the first time, and should re-iterate and clarify the aims and objectives of the project.

3. **Background**

   This should provide a detailed overview of underlying theory and practice which relates to the project topic, for example relating to methodologies and enabling technologies. It should cite a wide range of appropriate literature sources to support the arguments made in the report. This chapter should enable a technically literate reader who is not familiar with your project topic to understand the decisions which you make in the methodology section of the report.

4. **Method**

   This should analyse the methods used to undertake the project. You should also evidence and discuss the design of the project. The nature of the design will depend upon the type of project being undertaken. You should include supporting evidence for the design phase, which could include diagrams or tables.

   > You should avoid the use of 3rd party diagrams wherever possible. Redraw them and acknowledge their use with a "Derived from:" citation. Avoid the use of poorly taken photographs where diagrams would tell a better story.

5. **Implementation and Results**

   You will need to provide evidence of the implementation of your project and discuss the issues and problems that arose during the implementation stage. You will need to discuss the outcomes of implementation whether for a physical system, theoretical concept or experimental work.

   The nature of testing of your project will depend again on the nature of the project. Forexample you would discuss the tests made on a design and

build project, whether physically implemented or conceptual, to establish whether the system has met its specification. For a more experimentally based project you would discuss the results obtained from experimentation.

Please use screenshots rather than camera images where you need to show software. Present results using graphs and tables, formatted using an appropriate software package (e.g. Excel, SPSS, GnuPlot, or any number of proper plotting languages and packages).

6. **Evaluation and Conclusions**

   You must evaluate the outcomes of your project. To do this you must analyse your system or experiments, tests and results and use your previously developed criteria for measuring whether the project has met its original objectives. (It is not as simple as saying that you enjoyed the project and it worked!)

7. **Recommendations**

   Based upon your evaluation of the system and project as a whole you should make recommendations about the project. For example how would you have done it differently if you were to do the project again? What improvements could be made to your system or experiment if you were able to continue further work on your project? etc.

8. **Ethics, conflict of interest, and/or collaboration statement**

   It is good practice to include a statment acknowledging the requirements of ethics, and highlighting any ethical considerations. This can be very short! Also a statement on conflicts of interest if working with external partners, or if you are investigating something important to a funder.

   > Where a project is undertaken in collaboration with an industrial academic partner or develops previous work, your report must include an explicit statement of your individual contribution to the work and the extent of the collaboration.

9. **References**

   You must include a reference list at the end of your report, before the appendices. This must be in the correct Harvard referencing format. You must make use of these references to support your discussion in all parts of the report. (If you just include a reference list at the end you will likely fail your project). However don't forget that all words and work must be your own and not direct quotes from third party sources.

10. **Appendices**

    Appendices should NOT contain any text relating to the conduct of the project. They are only to be used for information which the reader will find useful but not critical to understanding the project. You should not put all of the images from the project into the appendices (this seems to be a holdover from where you might print the appendix only in colour to save money)

General notes

The objective of the report is to indicate clearly the worth of the investigation by discussing the research and investigative methods and the analysis and synthesis embraced by the "design and implement" aspects.

The assessors will be looking for clear links between the results analysis, conclusions, recommendations and implementation plans, with each one building on the previous stage of the argument. If the structure and content of the report fail to show these substantiating links, then no matter how brilliant, innovative or acceptable the recommendations, the project submission will not have achieved its overall objective.

The aim of the project report is to convince the assessors that:

- the stated objectives of your project are in context and make sense
- you are aware of the extent to which the methodology used for the implementation/investigation was appropriate
- you are aware of any inherent flaws and the effects of divergences from your plan
- you know and have shown the strength or weakness of the evidence on which you base your recommendations
- well-chosen sources have been used and sufficient depth of reading has been undertaken, and identifiably used, in your investigation. (Sources must be referenced within the text).

You must discuss the structure of your report, in detail, with your supervisor. In general, reports should follow the structure described above. Adaptations to this structure may be necessary but should be kept to a minimum, and should have the agreement of your supervisor.

Report length

The report should be around 10,000 words in length. Being able to express information clearly and succinctly is an important business skill. Reports which are more than 10% over the word limit will be penalised on the reporting category of the assessment criteria.

5.5 Assessment Element three: Project exhibition

The Project Exhibition will also form part of the assessment and provides an opportunity for you to display your work and demonstrate that you can clearly explain the project verbally. This will be scheduled after submission of the Final Report, in the last week of the academic year.

As part of the assessment for the project, the student must present the results of their project visually and verbally. The student will need to explain the project concept, approach and results in a visual and engaging format using an academic poster. This provides an opportunity for the student to succinctly explain the project, and their key results and also articulate aspects of the project process verbally.

Your poster should be formatted in A1 size, designed to be a summary of your project and must include:

- The project title
- Your name and supervisor's name
- Outline information, formatted in similar sectioning to the main report
- Results and conclusions.

Posters should be readable from a 2 m distance, and contain roughly 400 words. Try to clearly present data, and include a system diagram where appropriate. Posters are largely subjective, but should bne presented in line with typical academic style.

You may also prepare a demonstration of your project for use on the day of the project, but you must be aware of power, noise, and light limitso n the environment. All project electronics must also be PAT tested by the university prior to the event.

Appendices

APPENDIX A

The First Appendix

APPENDIX B

The Second Appendix