**School of Computing, Electronics and Mathematics**

**Project Handbook 2017-18**

**PROJ324 BEng (Hons)**

**MEng\BEng ELECTRICAL & ELECTRONIC ENGINEERING**

**MEng\BEng ROBOTICS**

**PROJ325 BSc (Hons)**

**BSc ELECTRICAL & ELECTRONIC ENGINEERING**

**BSc ROBOTICS**

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# 1 General Project Information

All final year students are required to undertake a major individual project that is an independent investigation bringing together the skills acquired on the programme.

The current Project Policy incorporates a Project Management System and Assessment Process that provides a Quality-Assured Project Module and a Quality Learning Experience.

Projects will vary considerably, with some developing into research types whilst others may follow established procedures. However, there is always one common factor – the standard. Prior to commencement and as part of the quality-assurance process, all projects require the approval of the Pre-Project Approval Panel or its delegate, normally the Supervisor.

Project practical activity will take place in the project laboratory suite on the third floor of the Smeaton Building, which consists of a large general open-planned area plus specialist laboratories, well-supported by computing facilities. The facilities, formally timetabled for the equivalent of 1 day per week, are normally available from February (the start of the second term) to the end of term (18th May 2016).

The project, being a major component of both the final year assessment and the overall degree award, can and will absorb much time and effort, but please keep the effort in proportionand ensure that your other studies in the final year do not suffer!

## 1.1 Project Selection

The onus is on the student to select a topicand, after approval, is his/her responsibility to liaise regularly with the supervisor and to meet deadlines and other requirements. It is assumed that the general area of the project will lie within the enrolled discipline of the individual. However when selecting a “good” project the following aspects need to be carefully considered:

* business, customer and user needs, including considerations such as the wider engineering context, public perception and aesthetics when selecting and planning their project.
* the need for a high level of professional and ethical conduct in engineering and a knowledge of professional codes of conduct
* project management requirements to achieve engineering objectives. All students are require to produce a Gantt chart to aid their understanding of the timing and are asked to produce staged objectives /deliverables.
* the commercial, economic and social context of your project (£100 spend from school)
* sustainable development
* finally you need to think about how you will test and demonstrate your project.

## 1.2 Supervisors

Supervisors are normally academic staff members, but external co-supervisors may be appropriate in some cases. The role of the supervisor is to help in the formulation of the project, to provide guidance throughout the duration of the project and ultimately to be the principal assessor.

Project supervisor styles will vary considerably and it is important that the student is aware of the supervisor’s modus operandi when engaging in dialogue with prospective/assigned supervisors.

NOTE**:** Academics do not necessarily restrict themselves to supervision of proposals in their specialist areas.

Projects’ Manager

TheProjects’ Manager, supported by the Projects’ Committee, has overall responsibility for the management of the project modules and will assist in matching students to supervisors together with provision of general advice on all aspects of projects. All matters relating to the specific project should however be referred to the supervisor.

# 2 Selection Process

It is in the interest of the ‘Stage 2’ student to act sooner, rather than later, to maximise choice of supervisor. General guidelines are:-

**1** Taking great care to note your log-in details, register on the Projects’ web-site:

[**http://fotpms.uopnet.plymouth.ac.uk/SPMS/**](http://fotpms.uopnet.plymouth.ac.uk/SPMS/)

* You will need to know your Project Module code
  + MEng/ BEng PROJ324
  + BSc PROJ325

**2** In trying to formulate a project proposal(s), either based on personal interests, academic staff interests or industrial placement suggestions:-

* consider your personal interests
* consider industrial placement suggestions, if appropriate
* look at possible suggestions on the web-site
* look at the past-projects index on the web-site
* locate relevant information from text books and journal articles
* look at details of academic staff areas of interest on the web-site
* try to match potential supervisors from the information provided
* look at academic staff e-mail and phone contact details
* contact possible supervisors by email/phone/visit to discuss ideas
* feel free to contact the projects’ manager for any advice

**3** Attend the project induction programme and **Project Showcase** on **WEDNESDAY 17th MAY**, even if on placement, and

* attend short presentation on general aspects of the project activity
* obtain information on the format for the logbook
* most importantly, view projects and have discussions with students to help formulate ideas for your own subsequent Initial Proposal(s).

4 By **Wed 25th Oct 2017**, submit, online:-

* Initial Proposal.

If you have not found a supervisor by this deadline, submit the proposal(s) anyway. The onus will then be on the Projects’ Manager to assign a supervisor, but be aware that the best option is for you find an appropriate supervisor in the first place!

5 By **Wed 8th Nov 2017**, submit:-

* Final Proposal (Word template provided under ‘Resources’)
* Gantt Chart {Work Plan} (Links on methods of creation provided under ‘Resources’)

Note that hard copies of these documents should be available in your Log Book, as well as Appendices in your Final Report

6 All registered final-stage students will be expected to attend the project induction lecture on the afternoon of **Monday 29th Jan 2018.**

7. Give a progress demonstration to your supervisor by 8th Week of the project

# 3 Final Proposal Form

|  |  |  |
| --- | --- | --- |
| Student | Name | eg Joe BLOGGS |
| Registration Number | On Swipe Card |
| Programme | | eg BSc(Hons) CSE or BEng (Hons) EEE |
| Module Code | | PR\*\* \*\*\* |
| Proposer | | Self / Supervisor / Industry |
| Supervisor | | If known |
| Proposal Title | | Please limit to **Max** of 10 words |
| Objective:  The goal intended to be attained (and which is believed to be attainable) | | |
| Aim:  This will contain the detailed actions of how your Objective will be achieved. Your text should be augmented with some form of Block Diagram – as the saying goes “a picture tells a thousand words”!  One to two pages will suffice.  This should include **at least** **four staged deliverables** as agreed with your Project Supervisor.   1. What constitutes a PASS (40%-50%) 2. What constitutes a 2:2 MARK (50%-60%) 3. What constitutes a 2:1 MARK (60%-70%) 4. What constitutes a FIRST CLASS MARK (70%)   (Note that your starting position must be **clearly** stated, particularly in relation to any software or hardware, and due reference made to it in your final report). | | |

# 4 Project Induction,

All final-stage project modules are timetabled to attend this meeting, which will be held in Babbage 005. The Project manager will give an overview of all aspects of the project management, emphasising the need for students to embrace the web-site and take full responsibility for driving the project.

A particular point to note here is your formal laboratory provision. Your timetables show a full-day project period during the week, entitled *Prioritised Allocation*. You are strongly encouraged to utilise this time in whatever way is appropriate to drive your project forward; should it be in the laboratory then staff will endeavour to guarantee a space for you.

Bearing in mind that the time-commitment required for a satisfactory conclusion of the module is of the order of two days a week, you will need to augment your timetabled activity with casual usage of the facilities. Note that there will be some, very limited, times when certain areas will not be available (details will be held at the Project Store hatch) but every effort will be made to accommodate you.

## 4.1 Code of Practice

**This code of practice is supplementary to, and does not replace Statutory, University or Faculty policies and codes of practice**.

* A professional approach will be expected at all times.
* Please ensure that all items on loan are returned promptly at the specified times to make them available to other students.
* Clear away your work area at the end of each period leaving it clean and tidy.
* Should any difficulty be encountered with availability of equipment or other facilities discuss this with the technical team and a solution will be sought.
* Remember we all have a duty to consider our own safety but also that of others.
* **Read the Health and Safety instructions carefully before starting work and act upon all instructions**

## 4.2 Health & Safety.

In the first days of the project, students are required to become familiar with the Health and Safety regulation of work environment contained in the Laboratory Handbook. You should ensure that you:

* take part in a Health and Safety induction at the company and any subsequent briefing
* are aware of the action to be taken in case of an emergency
* have familiarised yourself with the layout of the building, the location of fire fighting appliances and how they work, position of emergency exits, position of telephones and first aid arrangements
* have knowledge of any specific health and safety requirements if you are required to work off-site or out of normal working hours
* report any accidents or incidents in accordance with Industrial Project provider's

requirements

### 4.2.1 General

1. Students are **Not Permitted** to work in hardware laboratories or project areas alone or unsupervised.
2. Students are **Not Permitted** to operate any distribution switches, breakers, earth-leakage trips or distribution panels.
3. It is **Not Permitted** to Smoke or consume Food or Beverages in any laboratory.
4. Books, Clothing, Bags etc. must be placed in the storage facilities provided, or in laboratories where this is not available, clear of gangways and bench tops.
5. Do not switch on or operate equipment until you have been authorised to do so.
6. If you are not sure about the safe operation of any equipment that you need to use inform a member of staff before commencing work.
7. It is a requirement that you complete a **Risk Assessment** before you commence any non defined activities.
8. You are reminded to take note of all safety and guidance notices and to read the University and Faculty Health and Safety Policies, available via staff or student portals.

### 4.2.2 Electrical Safety

1. All ring main supplies are protected by independent earth leakage trips. Supplies disconnected due to a fault or any other reason **Must Be Report to the Technical Staff** who will ensure any faults are cleared and the area is safe before reinstating the supply.
2. **Emergency Stop** buttons are provided in all laboratories and will isolate all supplies within that laboratory. **Students Must Never** attempt to release an emergency stop button after it has been activated; you should inform a member of staff immediately.
3. 12V/24V dc supplies derived from a high capacity source can supply very high currents. Care must be taken to ensure that they are not subject to short circuits. A suitable fuse should be connected in circuit close to one of the terminals for protection.
4. All portable mains equipment is required to be tested for electrical safety before use in the University; a pass is indicated by a green **Tested for Electrical Safety** label. If there is any doubt as to the safety of any piece of equipment do not use it, report it immediately to a member of technical staff.
5. **All mains equipment, including personal equipment, brought in for use in the University must have a correctly wired and fused plug and be subjected to a Portable Appliance Test by the UOP Estates Department prior to its use**. Information regarding the testing of personal mains equipment by the estates department is available from the technical manager.

### 4.2.3 Student’s Projects

For the purpose of reducing risk of electric shock to yourself and others, students working with voltages in excess of 50 volts dc or 35.4 volts peak ac are to inform the Senior Technician for the area. A risk assessment will be made and a code of safe working will be implemented.

Students must have any hardware they have constructed examined and tested before connection if they contain any of the following:

1. Mains circuitry
2. Voltages above 50 volts DC or 35.4 Volts AC Peak
3. Any computer interfacing.

## 4.3 Health & Safety Guidance Notes

**4.3.1 Soldering**

Soldering irons MUST be placed in their stands when not being used. Wipe Soldering iron tips on a cleaning pad to clean them, the practice of flicking or tapping the iron to remove excess solder is not only bad practice but is Highly Dangerous and will not be tolerated.

The solder wire used in our laboratories contains a colophony free flux to help prevent occupational asthma; however if you suffer from any respiratory problems, which may be aggravated by solder fumes, you are advised to discuss this with the technical staff before commencing soldering operations. If you feel any breathing discomfort or are otherwise affected by the soldering process, stop immediately and inform a member of staff. Fume displacement filters are available for areas which do not have fume extraction. Do not bring in your own solder to use in the University.

If the soldering iron bit requires replacement contact a member of technical staff.

Most solders contain lead; always wash your hands after soldering.

### 4.3.2 Cutting Component Leads/Wire

Take care to ensure that clippings do not fly from the cutters towards yourself or others. Either place a hand above the cutters to contain the off cut or direct the off cut downwards. Safety glasses are available.

### 4.3.3 Aerosol Sprays / Chemicals

The use of aerosol sprays and other chemicals in laboratories is discouraged. All chemicals used within the University are required to be assessed under COSHH (Chemicals & Other Substances Hazardous to Health) regulations and therefore need to be identified, assessed and recorded **Before They are Purchased or Used on the Premises**. If the use of a chemical or aerosols is unavoidable the supervising technician must be informed and appropriate precautions taken.

### 4.3.4 Hot Air Guns

These guns are used for heat shrink sleeve etc. they generate high temperature airflow and must be used with care. Under no circumstances should they be left unattended while still running and care should be taken with their stowage when hot.

### 4.3.5 Knives/Sharps

Knives, and in particular, scalpels must be used with care and not left unguarded.

**Do Not Dispose of Broken or Blunt Blades in Waste Paper Baskets**; return them to the store for safe disposal.

### 4.3.6 Hot Glue Gun

The molten glue reaches a high temperature and can cause serious burns. The gun when switched on but not in use must be placed in a safe position with a suitable drip mat.

### 4.3.7 Fuses

Appropriately rated fuses are placed in circuits for safety purposes. Students should not replace fuses in equipment unless instructed to do so by a member of staff.

### 4.3.8 High Capacity Batteries

A 66AH 12 V lead acid battery could pass 500 amps through a short across its terminals.

The terminals of batteries must be insulated and an appropriate fuse fitted as near as possible to a terminal of the battery for protection.

Batteries should be handed to the project stores technician for disposal, not disposed of in the waste paper bins.

### 4.3.9 Protective Earth (P.E.)

All Class 1 mains equipment must be effectively earthed. On no account should a protective earth be removed from any equipment. NB. A guidance sheet “Construction Techniques for Mains Powered Projects” is available via the student portal.

### 4.3.10 Manufacturing of Mechanical Items Drilling of PCBs

The manufacturing and machining of all mechanical components and the drilling of PCBs is to take place in the Mechanical Workshop. All safety procedures regarding the use of machines or other equipment in the workshop are to be followed. The technician in charge is to be informed and give permission before you start work.

### 4.3.10 Robots

Other than during timetabled periods when the area is supervised by the named member of staff; access to the Robots in the Collaborative Robotics Area is controlled by the technical team. On no account should a robot be switched on without the specific authorisation of the technician responsible, who will first ensure that you are conversant with all safety and operating procedures. If you have not already been trained in these you will need to arrange a mutually agreed time for this to take place.

## 4.4 Other considerations

Beside typical Health and Safety issues as described previously you need to be aware that the following aspects have also potential health and safety implications:

* Religious aspects
* Sexual harassment
* Racism
* Cultural difficulties

## 4.5 Risk Assessment Form

Risk Assessment Form (Word template provided under ‘Resources’)

Risk assessment forms can be obtained from your SPMS site.

**ALL STUDENTS MUST COMPLETE A RISK ASSESSMENT FORM FOR THEIR PROJECT AND HAVE IT SIGNED BY THEIR SUPERVISOR**

## 4.6 Student Budgets

* + Students are responsible for keeping their expenditure within their set budget.
  + You are responsible for the repayment in full, inclusive of VAT, for all expenditure above your set budget.
  + Expenditure above the set budget limit will only be allowed after the Project Laboratory Store receives a **Request to Exceed Budget** form, available from the store. This must have the signed approval of your supervisor and a declaration of who will pay any excess amount.
  + Student budgets will be set annually.
  + **All Purchases Must Be Made via the Project Laboratory Ordering System**. We cannot refund expenditure made via any other means without prior authority of the CE Technical Manager.
  + Unwanted or incorrectly purchased items cannot be returned for credit if there is no fault by the supplier. It is your responsibility to check the accuracy of your order.
  + All items procured using Faculty monies are deemed to be the property of the Faculty of Technology and are required to be returned at the end of the exercise unless they other arrangements have been made.

## 4.7 Completed Projects – End of Module

Students may if they wish and with the approval of their Project Supervisor, and other interested parties retain their project. This is subject to all outstanding monies owing to the University being paid as outlined below.

In some circumstances the Faculty may wish to retain the student‟s project for its own purposes.

The stores personnel will issue the appropriate payment slip, which students should take to the University Cash Office, for a receipt to be affixed after payment.

On the return of the payment slip with attached receipt, the project store records will show the transfer of the project to the student. It is advised that the project should remain unaltered until all assessment marks are ratified.

# 5 All-Year Calendar

|  |  |  |  |
| --- | --- | --- | --- |
| University Week | | Activity | Explanatory Notes |
| No | Dates |
| 9 |  | Stage-3 Project Induction | Monday 29th , Stonehouse PSQ,1-3 pm  Paul Davey |
| 10 |  |  |  |
| 11 |  | Initial Proposal | On-line by 5pm, Monday 13th |
| Final Proposal | On-line by 5pm, Monday 20th |
| 12 |  |  |  |
| 13 |  |  |  |
| 14 |  |  |  |
| 15 |  |  |  |
| 16 |  |  |  |
| 17 |  |  |  |
| 18 |  |  |  |
| 19 |  |  |  |
| 20 |  |  |  |
| 21 |  | Christmas Vacation |  |
| 22 |  |
| 23 |  |
| 24 |  | Last WEEK of term |  |
| 25 |  | REVISION\ EXAMS |  |
| 26 |  | REVISION\ EXAMS |  |
| 27 |  | OFFICIAL PROJECT START |  |
| 28 |  |  |  |
| 29 |  |  |  |
| 30 |  |  |  |
| 31 |  |  |  |
| 32 |  |  |  |
| 33 |  | Progress Demonstration | 9am Mon 21st March |
| 34 |  |  |  |
| 35 |  | Easter Vacation | j0287384(t)[1] |
| 36 |  |
| 37 |  |
| 38 |  |  |  |
| 39 |  |  |  |
| 40 |  |  |  |
| 41 |  |  |  |
| 42 |  | Project Vivas |  |
| Project Showcase |  |
| 43 |  | Submit Project Report / EXAMS |  |

# 6 Log Book

## 6.1 Log Book Guidelines

|  |  |
| --- | --- |
| Function | 1. a chronological record of the work carried out (+ initial and date each page)   Essential: Date & Sign Off each and every entry  **Note**: reliable laboratory records can be an important factor in any patent dispute |
| Objective | 1. information source that will be the basis of the project and interim reports 2. provide information such that the work is repeatable under the same conditions 3. provide full information such that others may repeat or verify the work 4. record of all results and observations |
| Presentation | 1. well organised to minimise search time 2. legible and factually complete (including circuits, equipment, drawings) 3. hand-written / printed entries 4. page numbering from front & back   (helps to reduce the possibility of a successful challenge to the logbook’s validity)   1. cut & permanently paste data 2. **Do Not** leave blank pages 3. **Do Not** erase ( inc. liquid paper) or completely obliterate errors |
| Monitoring | 1. It is important that progress and logbook entries are regularly monitored 2. It is suggested that there should be a minimum of 6 entries (signed by your supervisor) in the logbook record form |
| Assessment | 1. the logbook contributes to the overall mark as per the assessment schedule |
| Format | Hardback A4 ( permanent binding)  (loose-leaf, spiral bound and other temporary binding not acceptable) |
| from front | 1. inside front cover: paste the project work plan 2. page 1 : paste the logbook monitoring record form 3. page 2 : paste the project proposal form |
| from back | 1. prepare and paste the project report plan 2. create a reference section: list references fully as encountered 3. create a bibliography section: list material resourced / researched 4. create a data sheet section: list data sheets and source 5. insert copies or extracts of data sheets as appropriate 6. create a technical /concepts section that clearly lists material that may be useful when preparing the report. It may be useful to categorise it 7. *completely relevant* to the objectives and must go in the report 8. *borderline* that might be of some interest and may be an appendix 9. **interesting** but may not be essential to the report  * create an appendix section |

## 6.2 Log Book Cover

|  |  |
| --- | --- |
| Name |  |
| Project Title |  |
| Supervisor |  |
| Programme |  |
| Module Code |  |

## 6.3 Log Book Record

|  |  |  |  |
| --- | --- | --- | --- |
| Inspection | Logbook  Page # | Date | Supervisor's  Signature |
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| 5 |  |  |  |
| 6 |  |  |  |
| 7 |  |  |  |
| 8 |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Supervisor’s Viva Inspection |  |  |  |
| 2nd Marker’s Viva Inspection |  |  |  |

NB: It is the responsibility of the student to ensure that the Logbook is inspected and signed at regular intervals

*Shaded* dates on the All-Year Calendar represent *suggested* meetings (minimum) with Supervisor, during which Log Book is checked and signed, together with **mandatory** signings on Open Day by Supervisor and 2nd Marker.

# 7 Project Progress Demonstration

Projects in industry progress increasingly rapidly from the initial project definition phase, through feasibility and initial system specification to working demonstrators (‘A’ and ‘B’ models) through to final production.

The student has 7 weeks from the start of the term in which to develop the project to the point at which one is able to demonstrate a working ‘A’ model to the supervisor. **This demonstration will be assessed by the supervisor and will contribute 20% to the overall project mark.**

The ‘A’ model will clearly not be the completed project. Full functionality is not expected, but it should ‘prove the principle’ either by simulation or some working elements of the final design.

It is essential to place a high priority on the project in this initial phase so that the progress in relation to the work plan can be explained and be shown to be on track to reach the final objective. This will require due consideration of lead times for components etc early on in the process. Plan well and work hard now to guarantee success at the end of the project. A good mark in this assessment will indicate being on track, a poor mark will mean that one must work considerably harder to do well!

A synopsis of the demonstration should be clearly entered in the log book.

The %age assessment will be based upon:

* Project management to date (25% weighting)

(Working to the plan, considering the key requirements, keeping supervisor informed)

* Effort & initiative (50% weighting)

(Taking responsibility for the project and driving it forward under own initiative)

* Progress demonstrated (25% weighting)

(What has been achieved and whether it would persuade the customer to fund the ‘B’ model)

Mechanism of Mark-Allocation:

* Mark assigned in accordance with above scheme (*Initial* Mark)
* One half of this mark is then protected
* The rest of the mark will then be subject to continued progress up to the Open Day
* The *Final* mark will then lie between (*Initial* Mark)/2 *Initial* Mark

NB It is mandatory for students to support the demonstration with a Powerpoint presentation, from which Supervisors will provide constructive feedback on their presentation skills.

# 8 Project Showcase (Open Day) Background

Historical

A 1986 survey, "Engineering Design Education on Undergraduate Degree Course" carried out on behalf of the Fellowship of Engineering (now The Royal Academy of Engineering) reported the desirability for an exhibition of final year design projects. At the same time the report was critical of the lack or limited scope of available exhibitions.

SoCEM, University of Plymouth

In 1988, the then Department of Communication & Electronic Engineering established a Project Open-Day that supported the final-year project of the BEng (Hons) degree. The success of this programme over a decade was such as to utilise it for all final-stage undergraduate project activity; separate BEng & BSc Projects’ Open-Days followed. Coincident with the creation of a purpose-built project/teaching laboratory suite in 2004, a combined Projects’ Open-Day emerged and now takes place in the final week before the Easter break. (NB As part of the Assessment process, *all students will have two independent vivas* in the days immediately preceding the Open Day.)

The Projects’ Open-Day affords:-

* final year students the opportunity to display the design, analytic, measurement / test, production, communication and presentation skills that have been developed in their programmes of study
* a forum for the various external examiners to interview final year students and assess the overall quality and standards of project activity in the final year undergraduate programmes
* industrial placement sponsors the opportunity to follow the progress of ‘their’ students and in some cases the projects that they sponsor
* an opportunity for industry to meet the next cohort of engineering graduates informally or as part of their recruitment process
* an opportunity to offer potential undergraduates from local and regional schools an additional visit to the School, complementing the existing and well established programme of recruitment open days
* careers officers the venue to renew/establish contact with the School
* penultimate stage students an opportunity to look at and discuss final-year projects with students who have just completed the process

# 9 Report

## 9.1 Report Planning

Project Report Plan Objective:

The project report plan should help the student to focus on the actual content at an early stage. The proposed sections/sub-sections\* will assist in selection, preparation & storage of material for the ‘final’ document. The individual nature of projects/programmes may require alternative/additional main categories.

\*the student will have to create one’s own sub-sections.

The check (****) column will assist the student in keeping track of progress

Report Plan (Not Definitive!)

|  |  |  |
| --- | --- | --- |
| Main Sections | Sub-Sections | Check |
| Title Page |  |  |
| Summary/Abstract |  |  |
| Acknowledgements |  |  |
| Contents |  |  |
|  |  |  |
| Introduction |  |  |
|  |  |  |
| Design Brief |  |  |
|  |  |  |
| Testing Methods |  |  |
|  |  |  |
| Project Management |  |  |
|  |  |  |
| Conclusions |  |  |
| References |  |  |
| Bibliography |  |  |
| Appendices | Project Proposal |  |
|  | Work Plan |  |
|  | Costings |  |
|  | Etc |  |
|  | Etc |  |

## 9.2 Report Format

|  |  |  |
| --- | --- | --- |
| Front | Cover |  |
|  | silver grey cardboard | provided by project lab SMB310 |
|  | lamination | optional (media services) |
| Binding | Spine |  |
| Printing | Paper | white A4 |
| Sides | single sided |
| Page Layout | Margins *left* | 40mm / 1.57″ |
|  | *right* | 15mm / 0.59″ |
|  | *top* | 15mm / 0.59″ |
|  | *bottom* | 15mm / 0.59″ |
| Text | Word-Processing | Microsoft Word |
|  | *font* | Arial |
|  | *style* | regular |
|  | *size* | 12 (normal text) : 16 (headings) |
|  | Line Spacing *main text* | 1.5 |
|  | footnotes | 1.0 |
|  | “quotations” | 1.0 |
|  | Justify | **Left** and **Right** margins |
|  | Style | English, third person, past tense |
|  | Headings | decimal notation |
|  |  | 1. Main Heading |
|  |  | 1.1 Lesser Heading |
|  |  | 1.1.1 Small Heading |
|  | Avoid | &, etc., e.g. , i.e., jargon, slang |
|  | abbreviations | only use abbreviations (& acronyms) if the text already contains the full version followed by the abbreviation in brackets. e.g..Silicon Controlled Rectifier (SCR) |
|  | Units | SI |
| Pages | New Pages | start major sections on new pages. |
|  | Avoid | new paragraphs and sub sections near the page end |
|  | Numbering *position* | page bottom centre |
|  | style | **Roman** – up to Introduction (i, ii, iii)  **Arabic** – from Introduction (1, 2, 3) |
| Non Text | Illustrations | number consecutively in one sequence with title **under.** |
|  |  | clearly reference in text |
|  | graphs and diagrams | LABEL: Figure #, title TEXT: Fig. # |
|  | tables (plates) | LABEL: Table (Plate) #, title TEXT: Table (Plate) # |
|  | Ensure | illustrations near to and **after** their first text reference |
|  | Avoid | placing illustrations as appendices |
| Checking | Spellcheck *Ensure* | **English** selection |

## 9.3 Report Style

|  |  |  |
| --- | --- | --- |
|  | Function | Comments |
| Report | To convince the reader   1. of background research carried out 2. of topic knowledge in the wider context 3. of your understanding of the project 4. of the work that has been carried out 5. of the achievements *v* the objectives | Avoid Waffle  **Avoid** stating what went wrong (this should be in the logbook) unless it is significant to the project |
| Format | SoCCE guidelines | See previous page |
| Title Page | Content | Use Template |
|  | Title | 1. informative with keywords identified with topic 2. restrict if possible to a single line 3. do not be over ambitious / misleading |
| Summary Page | a miniaturised **(single side A4)** version of the full version report emphasising the most important conclusions, findings and recommendations.  This is not an easy task ! | 1. reminder of what has already been read 2. useful to those who don’t need full report 3. the use of summaries in industry is increasing 4. list keywords |
| Acknowledgements | to all who have provided assistance and support, such as:- | 1. industry / manufacturers / distributors 2. Academic staff 3. library / media services 4. fellow students |
| Contents list |  | 1. clear and logical format |
| Text | to guide the reader to sections / sub-sections of interest  -not common practice to index a report – | 1. section and sub-section titles **must** match text 2. **Include** section / sub section page numbers |
| Illustrations |  | 1. table numbers, title and page number, then 2. figure numbers, title and page number, then 3. plate numbers, title and page number |
| Introduction  **I** **I**dentify main issues  **N**  **N**eed for the project  **T** project **T**itle  **R** **R**ange of investigation  **O** **O**bjectives | sets the scene by providing a statement of the purpose of the study / project and the problem being investigated. | 1. provide project aims, objectives and background 2. **objective :**  purpose or goal 3. **aim :** how to reach the objective 4. **background:** concise review of related work   -historical & current thinking re the topic-   1. the contribution of the project to the topic 2. brief overview of the investigation process 3. an evaluation of any recent reported results |
| Major Sections | to show what has been achieved and its relation to the original objectives | concepts, results and evaluation including   1. project objective and specification 2. design philosophy / selection 3. actual design 4. hardware /software / equipment resources 5. procedure / work done as accurate as possible 6. identify important steps to be able to replicate, verify, extend or be taken over 7. data /results (raw data in appendices ) 8. detail project costings |
| Finale | the chance to show one’s understanding and interpretation of the work carried out | * compare practice with theory * compare experimental results with each other |
| Discussion | demonstrate reasoned thinking | **Essential:** clear and logical content   1. discuss work done and reviewed wrt objectives 2. speculate re causes and effects 3. comment on trends and changes 4. analyse and state implications 5. analyse and explain errors   **Essential:** pre- plan items for discussion  **Avoid:** repeating results section |
| Conclusions | summarise the findings re the objectives  - derive directly from results - | 1. short and to the point 2. state what is important ( findings / implications) 3. explain why results are valid 4. indicate limitations / gaps |
| Recommendations | suggest future research  - derive directly from conclusions - | 1. state separately and number 2. alternative approaches |
| Finale | A Difficult Task! | You May Combine Them |
| Citations | readers can access original sources | check validity of interpretations / conclusions |
| References | confined to sources mentioned in text | 1. sources of reference should be fully listed and described in full **(refer to page 18)** |
| Bibliography | to provide a list of all works and sources that have been read or consulted | 1. not necessarily a full list of all relevant material   (refer to page 18) |
| Appendices | to present important information that is not included in and essential to the main text | 1. start each appendix on a new page 2. **essential** that appendices are active   i.e. referred to in main text   1. **avoid** repetition of material in main text 2. **avoid** inclusion of unnecessary data sheets **(to give bulk)** |

|  |  |  |
| --- | --- | --- |
| Draft Report | **Recommended** to optimise/ enhance a record of the work that will be available for general inspection for 5 years | **Essential:** discuss review of the draft report with  supervisor(s) |
| Citations | System | Style |
| Text | Harvard System  (name-and-date system) | 1. authors name ( year of publication)   Smith (1996)  Smith and Jones (1997)  both names always included  Smith, Jones and Green (1998)  all names included the first time the reference is cited, thereafter  Smith et al. (1998)  if more than one with the same year  Smith (1996a)  Smith (1996b) |
|  | Numerical - Index System | 1. authors name (reference number)   Smith (4)   1. style for multiple authors as Harvard |
| Full References | Harvard System | in alphabetical order of authors names |
|  | Numerical - Index System | in numerical order but reposition date |
| References | Format | Examples |
| Journal Reference | authors surnames, initials. year, contribution title, *journal title*, ***volume number***, *page numbers*. | Harvard:  Jeunhomme, L., Pochelle, J.P.and Raffy.J. (1978).  Wavelength dependence of model dispersion in graded index optical fibres*. Electronics Letters,* ***14****, pp.364-366.* |
|  | Numerical Index:  1 Jeunhomme, L., Pochelle, J.P.and Raffy.J.  Wavelength dependence of model dispersion in  graded index optical Fibres*. Electronics Letters,*  1978, **14**, pp.364-366 |
| Book Reference | authors surnames, initials, year, *book title,* editionnumber*,* publisher*,* page orchapter numbers. | Shepherd, W., Hulley, L.N. and Liang, D.T.W. (1995).  *Power Electronics and Motor Control.* Second Edition. Cambridge University Press. Chapter 12. |
| On-line Reference | Using Internet Browser, quoting full web address of specific referenced material(s). | http://computer.howstuffworks.com/computer-memory.htm |

## 9.5 Report Title Page

##### Title

by

Name

insert title & name using same font & remove frame border

A report submitted to the University of Plymouth

in partial fulfilment for the degree of

BSc(Hons) --------------------------------------------

insert award using same font & remove frame border

May 2015

## 9.6 Summary Page

The Rise and Fall of

Plymouth Argyle

Flingel Bunt

Name

insert title & name using same font & remove frame border

Summary

[Copy Summary from Report & attach to this cover]

# 10 Assessment

|  |  |  |  |  |  |  |  |
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| 10.1 Overall Assessment | | | | | | | |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Student’s Name | | | |  | | | |  |
|  | Module Number | | | |  | | | |  |
|  | Academic Year | | | | 2016 - 2017 | | | |  |
|  |  | |  |  |  |  | |  |  |
|  |  | |  |  |  |  | | % Mark |  |
| Execution | | | Supervisor’s Assessment of :- | | | | |  |  |
| management | project proposal, work plan, log book and communications | | | |  |  |
| motivation | project demonstration | | | |  |  |
| effort & inventiveness | | | |  |  |
| achievement | design content; | | | |  |  |
| use of CAD/software/pcb; | | | |  |
| quality of hardware/software; | | | |  |
| test & measurement | | | |  |
|  |  | |  | **Execution Total** | | | | 0 | ▼ |
|  |  | |  |  |  | |  |  |
| Vivas | | | Supervisor’s Assessment of :- | | | | |  |  |
| technical & presentation skills | | | | |  |  |
| 2nd Marker’s Assessment of :- | | | | |  |  |
| technical & presentation skills | | | | |  |  |
|  |  | |  | **Viva *Sum* Total** | | | | 0 | ▼ |
|  |  | |  |  |  |  | |  |  |
| Report | | | Supervisor’s Assessment of :- | | | | |  |  |
| structure & presentation | | | | |  |  |
| theoretical content | | | | |  |  |
| concepts, design & testing | | | | |  |  |
| Supervisor’s Report Total | | | | | 0 |  |
| 2nd Marker’s Assessment of :- | | | | |  |  |
| structure & presentation | | | | |  |  |
| theoretical content | | | | |  |  |
| concepts, design & testing | | | | |  |  |
| 2nd Marker’s Report Total | | | | | 0 |  |
|  |  | |  | ***Average* Report Total** | | | | 0 | ▼ |
|  |  | |  | **Overall Percentage Mark** | | | | | 0 |
|  |  | |  |  |  |  |  | |  |
| Supervisor’s signature: | | | |  |  |  |  | |  |
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| Supervisor | |  |
|  | Execution |  |
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|  | ***NB*** The **final** *Progress* mark could lie between 50% and 100% of the **initial** mark, dependant on subsequent progress**. Initial** *Progress* mark was **%** |
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| 2nd Marker’s signature | |
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## 10.2 Progress Assessment

|  |  |
| --- | --- |
| Name |  |
| Module Code |  |

# 

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Element | | Sub Elements | Max  Mark | Actual  Mark | Comments |
| project  management  to date | | Working to the plan, considering the key requirements, keeping supervisor informed | 25 |  |  |
| effort & initiative | | Taking responsibility for the project and driving it forward under own initiative | 50 |  |  |
| progress  demonstrated | | What has been achieved and whether it would persuade the customer to fund the ‘B’ model | 25 |  |  |
|  | | Progress Total | 100 |  | General Comments |
|  |  | |  | |  |
|  |  | |
| Supervisor: | | |
| Date : | / / 2017 | |

**NB** The *Progress* mark constitutes 20% of the *Overall* mark

## 10.3 Viva Assessment

|  |  |
| --- | --- |
| Name |  |
| Module Code |  |

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|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Element | | Sub Elements | Max  Mark | Actual  Mark | Comments |
| technical  knowledge  & understanding | | re project  re the project topic  in the wider context | 60 |  |  |
| presentation  skills | | oral,  poster,  use of log book | 40 |  |  |
|  | | Viva Total | 100 |  | General Comments |
|  | |  |  | |  |
| **#** circle as appropriate | | |
| Assessor: #Sup *or*  #2nd M …... | | |
| Name: | | |
| Date : | / / 2017 | |

**NB** Each *Viva* mark constitutes 5% of the *Overall* mark

## 10.4 Execution Assessment

|  |  |
| --- | --- |
| Name |  |
| Module Code |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Element | | Sub Elements | Max  Mark | Actual  Mark | Comments |
| management  (10% of Overall) | | project proposal, work plan, log book and communications | 100 |  |  |
| motivation  (35% of Overall) | | project demonstration | 100 |  |  |
| effort & inventiveness | 100 |  |  |
| achievement  (25% of Overall) | | design content;  use of CAD/software/pcb; quality of hardware/software;  test & measurement | 100 |  |  |
|  | |  |  |  | General Comments |
|  |  | |  | |  |
|  |  | |  |
| Supervisor: | | |  |
| Date : | / / 2017 | |  |

NB The *Execution* assessment constitutes 70% of the *Overall* mark

## 10.5 Report Assessment

|  |  |
| --- | --- |
| Name |  |
| Module Code |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Element | | Sub Elements | Max  Mark | Actual  Mark | Comments |
| structure  &  presentation  (5% of Overall) | | clarity & use of English; abstract; appendices;  references;  bibliography; acknowledgements;  diagrams, photos, tables, graphs; conclusion | 100 |  |  |
| theoretical content  (5% of Overall) | | report objective;  relevant material research;  awareness in the wider context | 100 |  |  |
| concepts, design & testing  (10% of Overall) | | achievements *v* objectives;  results/interpretation;  clear evidence and discussion of work done | 100 |  |  |
|  | |  |  |  | General Comments |
|  | | |  |  |  |
| **#** circle as appropriate | | |
| Assessor: #Sup *or*  #2nd M …... | | |
| Name: | | |
| Date : | / / 2017 | |

**NB** The average *Report* assessment constitutes 20% of the *Overall* mark