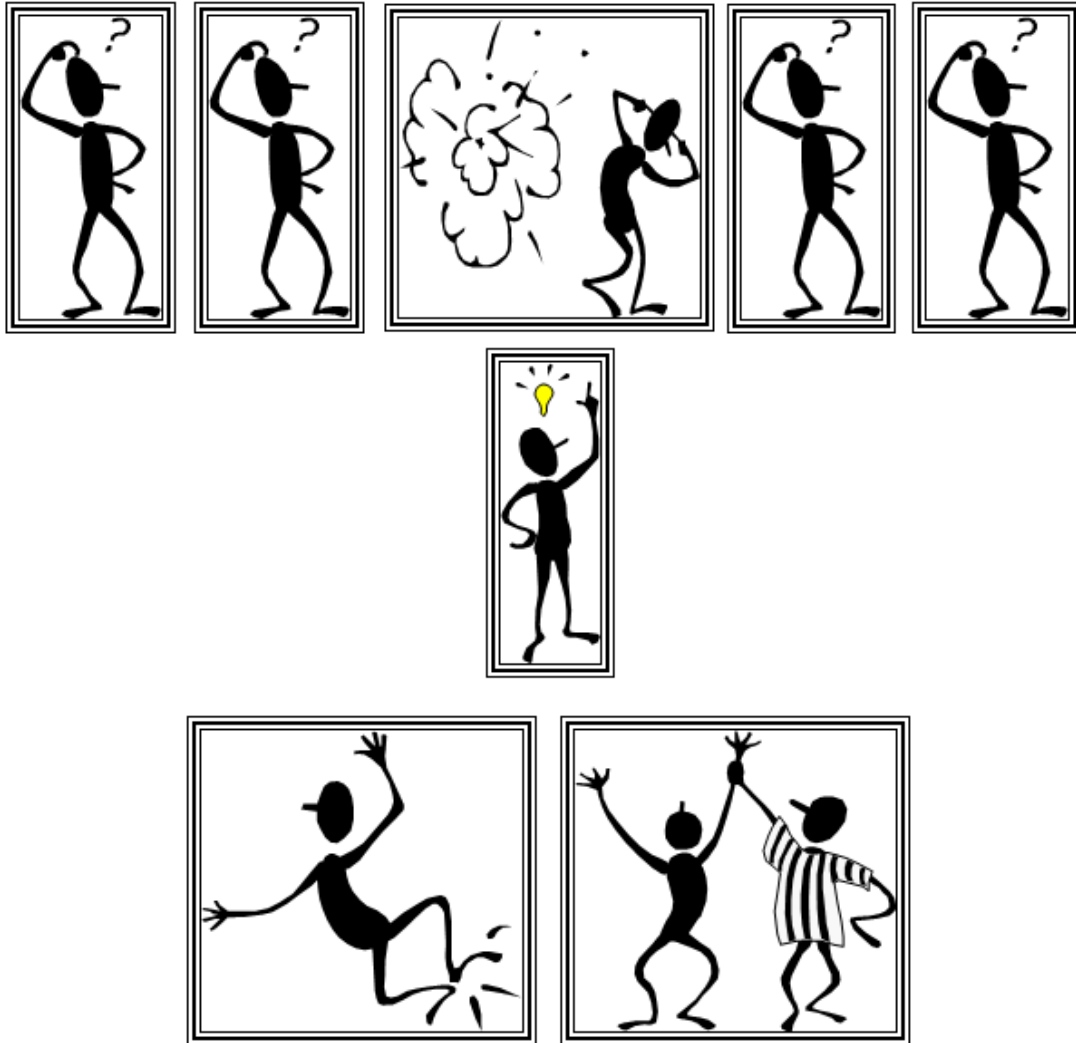School of Systems Engineering
Module SE3IP11 Individual Project
Part 3 Individual project 2015/2016

Guidance for Students and Supervisors

Dr B. Potter
Module convenor

The project ideas described within the accompanying "SE3IP11 Project selection and registration – Guidance to students" document are the intellectual property of specific project proposers/supervisors, the School of Systems Engineering and the University of Reading.

Students wishing to commercially exploit work done as part of their third year project must seek express permission from the relevant copyright owners.

Section	**Page Number**

Important dates and deadlines summary

Spring Term 2015

February 16th	*Project Kick-Off* meeting
March 16th, 10:30am (optional)	Submission of "*Student Project Proposal Form*"
March 23rd, 10:30am	Submission of "*Student Project Selection Form*"
March 27th (expected)	Publication of allocated projects for 2014/2015

Autumn Term 2015

October (to be confirmed)	*Mechanical Workshop Health and Safety* refresher
October 9th (*week 2*):	Submission "*Project Initiation Document*"
November 2nd – 6th (*week 6*):	*Logbook* check
December 11th (*week 11*):	Submission "*Project Progress Review Form*"

Spring Term 2016

January 12th (*week 1*):	Submission of revised PID (*if applicable*)
February 15th – 19th (*week 6*):	Demonstration to supervisor
March 25th (*week 11*):	Submission of SCARP Abstract & Paper and Project Poster
End of Spring Term:	***Project End***

Summer Term 2016 - Project Examination

April 22nd (*week 1*):	Submission of Final Report and logbook
April 18th – 22nd (*week 1*):	Project Demonstration to Internal Examiners (*formal*)
May/June	SCARP - Projects Conference (*formal*)
June	External Examiners Project Vivas (*by invitation*)
June	Submission of Project Work Archive

NB. **The above information is for guidance only. It is important that students check via Blackboard module the permanent announcement where confirmed dates are posted.**

Instructions to Students

All final BSc/BEng students in the School of Systems Engineering have to do an individual project, which is a major component of their final year, worth 40 credits - some 22% of the degree.

Part 3 projects provide the opportunity for all students to engage in an extended piece of independent work. Projects are not extended labs - students are expected to work primarily on their own, while **liaising regularly** with their supervisor to ensure that sensible goals are set and achieved. Students for whom the SE3IP11 project module is compulsory are reminded that:

> *they have to pass the project/practical component of the course at the first attempt. Consequently, any student who fails their final project can only achieve a pass degree at best.*

The suitability of projects for different degree courses is clearly indicated in the accompanying "*SE3IP11 Project selection and registration – Guidance to students*" document which provides guidance on how to propose, select and register for a project. Only in special circumstances will a student not following a suitable course be allowed to work on such a project.

It is the responsibility of the individual student as project manager to set realistic objectives and to stick to them. Any alterations to the original project initiation document must be approved by the project supervisor. A project is nominally allocated up to a maximum of one hour a week of consultancy from the project supervisor during agreed, scheduled weekly project meetings; however students are expected to solve problems on their own. Students are normally expected to work at least 400 hours on their project. The final project assessment will reflect the way project objectives have been met and the degree of assistance the project has received.

Preparatory lectures and workshops are normally held after Part 2 examinations have finished in June or October to help students to choose, prepare, progress and manage their projects. It is important that students attend all such sessions.

All projects have to undergo a formal health and safety risk assessment process, initially by completing the University of Reading Risk Assessment form RA2. This should occur, at least in outline, at the project initiation document phase but a full risk assessment may be needed for some projects in particular and/or Ethical approval may be required. Projects with Health and Safety issues and/or Ethical issues must be cleared as early as possible in the project lifecycle (see *Health and Safety Management of Projects* section and *Research Ethics* section).

Any orders for components must be processed by an authorised member of the technical staff. All orders must be counter-signed in advance by the project supervisor (see *Procedures for the Supply of Components for Projects* section and forms available on Blackboard).

The overall project budget must be agreed with the project supervisor within the allocated budget.

If prior approval of the module convenor has been obtained, visits to outside organisations will qualify for expenses at the cheapest public transport rates.

Laboratory space will be allocated in the School as appropriate by October, typically e.g. G40, G21 and G26, School Common Room, etc. Students are also encouraged to relate to their fellow students in the cohort. All students are expected to be present during the scheduled project time during term time.

Students do not have the right of access to their project supervisor other than during the agreed scheduled weekly project meeting.

Each student must keep a logbook in which details of his/her particular contributions are kept (see *Continuing Assessment - Progress Monitoring* section). The logbook remains the student's property but should always be available for inspection by the supervisor(s) and examiners. It is important that students keep an accurate logbook, as this is used in attributing credit for different elements of the project. It will also help when students write their project report.

Logbooks must be signed-off by the project supervisor on a weekly basis and must be submitted with the final report in week 1 of the 2016 Summer term in G47.

Students are reminded that any substantive help, however obtained, must be noted in the Project Logbook and in the Acknowledgements section of the Project Report.

Project selection and registration procedure

Students must refer to the accompanying "SE3IP11 Project selection and registration - Guidance to students" document which contains the list of staff project proposals and detailed guidance on selection and registration of suitable projects for those students who will undertake a SE3IP11 Individual project. The document also contains guidance on how to propose your own project.

Upon submission, the "*Student Project Selection*" forms are processed. Normally if the first project and supervisor are still available, students get their first choice, else their second choice, else their third choice.

The list of allocated projects for 2015/16 should normally be published by Friday 27th March 2015.

Part 2 (2014/15), students should meet with their supervisor before the end of the 2014/15 academic year to discuss their project and the PID.

Students on placement or suspended during academic year 2014/15 must ensure that they complete their project selection by the deadline specified so that a project is allocated to them in March.

Social and Legal

Social

Students should consider the possible social impact of their project, both for their project's immediate stakeholders and for society as a whole. How might its deployment affect behaviour? What are the possible positive and negative consequences of this change?

Legal

Students are responsible for ensuring their project does not infringe any civil or criminal law. In particular:

1. Intellectual Property Rights which includes Patents, Trade Marks, Registered Designs, Copyright, Database Rights, Confidence and/or Licenses.

2. Appropriate handling of any sensitive data e.g. personal or financial information

3. Equality Act 2010.

All of the above are covered in the final year SE3SL11 Social, Legal and Ethical Aspects of Systems Engineering module but if you have a concern it is your responsibility to discuss it with your project supervisor.

Health and Safety management of projects

All projects have to undergo a formal health and safety risk assessment process. This should occur, at least in outline, at the project initiation phase but a full risk assessment may be needed for some projects in particular. Many projects will involve basic IT use and this does not represent a high degree of risk. It is likely students only need pay attention to the risks associated with use of Display Screen Equipment (DSE) which they should be familiar with from the Student Health and Safety Code. Note however, the form used indicates the potential hazards of occupational stress and working out of hours. Students should therefore give these some thought, especially if you intend to do a lot of work in the School (e.g. labs) out of normal hours.

This should follow best practice in management of H&S. The university has a risk assessment form RA1 (available on Blackboard). The form has specific sections where i) hazards are listed and ii) initial thought is given to their control. Some form of severity / likelihood score may also be relevant, for example the questions "on a scale of 1 to 5 how severe is any potential injury arising from the project" and "on a scale of 1 to 5 how likely is it that injury would occur". From this information, it can be decided whether i) it is acceptable to proceed with the project and ii) if a full risk assessment is needed. The risk assessment should then be submitted along with the Project Initiation Document. Additional Risk Assessments (RAs) for demonstrations may also be required as may revision of RAs mid-project. Minor revisions, which will cover most cases, can be left as informal/formative exercises (see further guidance in Appendix 1 - *Risk Assessment*, extract from "System Engineering - Students Area H&S Code").

Research Ethics

Most projects *will not* require formal ethical approval from the Head of School or the University Research Ethics Committee.

However, as for Health and Safety issues, Ethical issues must be addressed following best practice. All projects raise some ethical issues, so students should think about those at the project initiation phase but full ethical approval may be required for some projects (even with low H&S risk), as **some research cannot be carried out without the approval of the Research Ethics Committee**.

If you are in any doubt as to whether your project might need approval see Appendix 2 *Research Ethics Procedure for undergraduate project proposals* as set out by the Head of School, where students and supervisors can find specific guidance.

Mechanical Workshop

For projects where there is an identified mechanical element, there is a need to ensure these are manageable in terms of mechanical workshop resources. The demands on the workshop if not formalised can lead to overloading of mechanical technicians' time through the inability to plan. The situation is exacerbated by the fact that many students leave work until close to the deadline and dramatic changes in requirements may also occur at this time.

Students who have projects with identified mechanical elements are required to meet with a mechanical technician (who may be appointed to support the project or else liaise with the other technicians in the workshop) on at least two occasions during the project initiation stage. This would normally be in June or very early in the Autumn term.

The purpose of these first meetings will be more concerned with achieving consultation and feedback on initial project designs a student may present as well as further clarifying what work is summative and what enabling. Students are also expected to discuss material requirements which will need to be budgeted for and purchased.

Later meeting(s) where requirements will be closer to finalisation, will be more focused on resource allocation, particularly when enabling work is required, so that both student and workshop can plan both purchasing and performance of the work.

These meetings are to be recorded (by the student) in the student's logbook for discussion with the supervisor at subsequent meetings.

Procedures for the Supply of Components for Projects

This procedure applies to all part 3 and 4 project modules in the School of Systems Engineering.

The student (or nominated person to do the ordering for the Group Projects) should seek to source the items required from a supplier in the following order:

1. Electronically from RS Components or Onecall :- details of ordering from these two suppliers can be found in the document *Ordering from RS Components and Oncall.doc*;
2. From another 'preferred' supplier;
3. From an alternative supplier *with the express permission of the Technical Support Manager*.

For both 2 and 3 see the document *Ordering from alternative suppliers.doc*. Only if an item is not available from the first or previous supplier may you move to another.

For all orders, you will need to complete an ordering form. For items sourced from 1. above please use the form *Order Request from RS/Oncall.doc*. For all other orders, please use the form *Order Request from other suppliers.doc*. In each case, you will need the appropriate approvals, which includes your supervisor in all cases. Include supplier details, prices (incl. VAT and shipping costs, if any) as appropriate. See Blackboard/ Course Documents for fuller information. Any updates to this procedure will appear there too.

The student should pass the relevant form to their supervisor for approval. Once approved, the student should give the form to one of the electronics technicians who will arrange the ordering, recording the costs and detail of the project to charged. If the student exceeds their budget limit the technician will notify the supervisor and module convenor thereby halting the purchase. Therefore you should keep your own note of spending against your project budget and if you are in danger of exceeding this you should seek explicit permission from your supervisor prior to passing the form to the technical staff.

When the goods arrive, the student will be sent an email by the technician from whom they can be collected.

Project Initiation Document

The "SE3IP11 Project selection and registration" document and *Student's Project Proposal*" forms contain only a brief outline of each project idea. A requirement of the project is that a formal *Project Initiation Document* (PID) is produced, setting out the management plan and requirements of various parts of the project, the likely time each part will take, the deliverables and the cost. Starting with background investigation, that is investigation of the project context and literature, and of similar [specialist] products. Students must develop this PID.

By the end of week 2 Autumn term 2015 students must have finalized their *Project Initiation Document* (guidance and template are available on Blackboard). Students must complete and submit no later than 10:30am on Friday 9th October 2015:

- *one copy* in G47 **of their PID (guidance and template are available on *Blackboard*). The project supervisor must approve the PID and sign-off the document prior to submission in G47.**

- *one copy of the University of Reading Risk Assessment*, RA2 **form must also be submitted separately in G47 by the above deadline.**

- *one single pdf file* **of the completed PID and RA1 form must be submitted electronically via Blackboard module SE3IP11-14-4A under "Electronic Submissions" by the above deadline.**

The penalty for failure to submit Project Initiation Document and RA2 form by the deadline is -5% of the SE3IP11 module mark.

During the Autumn and Spring terms (Terms 7 & 8) the supervisor and examiners will use the project initiation document and student logbook to help monitor the progress of the project.

The project initiation document is to be maintained throughout the project duration as is the logbook and its final version must be included as an appendix in the final year report, so as to help establish the extent to which the project has been successful. Students are encouraged to refer back to their PID when writing their conclusions in the final report.

Continuing Assessment - Progress Monitoring

Logbook

Each student must maintain a Logbook where details of his/her particular contributions are kept. The logbook remains the student's property but should always be available for inspection by the supervisor(s) and examiners. It is important that students keep an accurate logbook, as this is used in attributing credit for different elements of the project. It will also help when students write their project report.

Logbooks must be signed-off by project supervisors on a weekly basis and must be submitted with the final report in week 1 of the Summer term in G47.

1. Logbooks can be hardbound or electronic (if electronic students must always present a printed copy)

2. Front page should have the usual: UoR, SSE, student name, degree, email, project title, project supervisor name(s)...

3. First page of the logbook is for dates, signatures and the corresponding page numbers. Students should get this page and the corresponding work signed off every week. If a

week gets skipped then the supervisor can sign for two weeks. If nothing gets done, this is noted on the first page. In exceptional circumstances a senior academic can sign on behalf of the supervisor.

4. Students are encouraged to number the pages in the log book and keep an index.

5. If hardbound, computer output (drawings, software design, etc.) should be cut out and stuck into the pages of the book - this is an editorial process.

Permission has been granted to distribute the guide: www.sciencebuddies.org/science-fair.../printable_project_**logbook**.pdf, also available on Blackboard, where student can find further guidance on how to maintain their Logbook.

Generally, the website is very good with some good, well presented notes on "Reading Research Papers" etc., students are encouraged to take a look at it. The information complements our own School Style Guide.

Week 6 Autumn term - Logbook check

By week 6 of the Autumn term students must have made sufficient progress to demonstrate that the project is feasible and achievable.

All logbooks are to be checked during week 6 of Autumn term. During week 6 students must **present their logbook for inspection in G47 on Mon, Tues or Wed.**

If a student's logbook cannot be signed-off immediately, then an appointment will be booked for the student to attend an individual interview with Dr Potter usually on Thursday 5th November. Individual interviews are expected to be held between 10:30 and 13:00.

Students who fail to undergo the week 6 logbook check or whose logbook does not provide sufficient evidence of regular meetings with supervisor(s) and work, will be referred to the School Director of Teaching and Learning, who may consider referring the student to Faculty Director of Teaching and Learning on the Neglect of Work procedures.

End of Autumn term - Project Progress Review

Close to the end of Term 7 project progress will be reviewed against the original plan. Each student must produce a completed form: '*Project Progress Review Form*' available on Blackboard. The student fills in Section A, then meets with the supervisor to agree (and sign) Section B, and then the student fills in Section C. Append the Gantt chart from the PID and **submit the completed form in G47 no later than 10:30am on December 11th, 2015**. The form will be returned to the student once reviewed by Board of Studies representative (section D).

Following project progress review, and in consultation with your supervisor, those students who made major changes to their project plan will be requested to submit the corresponding revised project initiation document, PID.v2 and risk assessment form if applicable. Students must do so **no later than 10:30am on Monday 11th January, week one of Spring term**. The project supervisor must approve the PID.v2 and sign-off the document prior to submission in G47.

Students who fail to undergo the Project Progress Review by the deadline above will be referred to the School Director of Teaching and Learning, as may students whose progress review outcome is marked as unsatisfactory.

Week 6 Spring term - Project demonstration to supervisor

The formative demonstration to supervisor will take place in week 6 of Term 8, when individual projects will be assessed (a moderator may attend this demonstration). As part of the feedback to the student from this formative demonstration a mark may be given for guidance only, and

advice as appropriate, to help the student improve their project by the end of Spring term (project end) and demonstration in time for the formal project examination due to take place week 1 of Summer term.

Students are expected to make arrangements for their demonstration well in advance, that is early Spring term.

It is the responsibility of the student, liaising with supervisor, to set a mutually convenient day, time and suitable location for this 10-15 minutes demonstration. Students must ensure that the room where the demonstration is to take place will be available on the day. Once agreed, students must record the agreed schedule in their logbook.

Students must then formally log the schedule of their demonstration to supervisor in G47, giving date, time, and location (room number).

All demonstrations must be scheduled and formally logged in G47 by end of week 5, Spring term at the very latest.

Students who fail to demonstrate their project will be referred to the School Director of Teaching and Learning as may students whose project has been identify as "at risk" of failing its objectives.

Writing Project Reports and Conference Papers

All students will have to write a final project report and a short 4-page paper, give demonstrations and a presentation in a formal conference setting SCARP 2016, School Conference for Annual Research Projects. All students must ensure that their communication skills whether written or verbal, are up to the standard of that expected of students in their final year of studies.

School Style Guide

Students not yet familiar with the School Style Guide, should refer to: *'School style guide for technical reports and academic papers'* by Prof. V. Ruiz, an electronic version of the School Style Guide is available from Blackboard.

Study Advice Workshops

Students may consider attending some of the University Study Advice Workshops. The Study Advice team offer regular workshops throughout the year on a variety of topics, e.g.

1. Writing academically: style, grammar and communication
2. Understanding referencing, avoiding plagiarism
3. Giving effective presentations, speaking up in seminars

For more details see the Study Advice Workshop website:

 http://www.reading.ac.uk/internal/studyadvice/Workshops/sta-workshops.aspx

Project Poster, SCARP Abstract & Paper

Project poster, SCARP abstract and conference paper are to be submitted electronically **no later than 10:30am on Friday 25th March 2016**. Submission procedure will be specified closer to the date.

To support project examinations (demonstration and presentation) due to take place in Summer term students are requested to submit a number of supporting documents:

- An A2 size poster (*template available on Blackboard*), to be submitted electronically via Blackboard module under "Electronic Submissions", upload poster file (ppt) via the "*Project poster*" Blackboard assignment.

- A project abstract using the *SCARP Abstract page* template that will be available to students on the SCARP conference website. The abstract page is to be submitted via blackboard module under "Electronic Submissions", upload the file (docx) via the "*SCARP Abstract*" Blackboard assignment.

- A write-up of the most "original" feature of their individual project in the style of a short conference paper (following School Style Guide for academic papers, and **limited to 4 sides A4 in the proportion of 2/3 of text and 1/3 for references and figures**). Detailed guidance will be published on the SCARP conference website. SCARP paper is to be submitted via Blackboard module under "Electronic Submissions", upload the 4-page paper file (docx) via the "*SCARP Paper*" TurnItIn assignment. The TurnItIn assignment will be set up so that students can familiarise themselves with it, i.e. students will be allowed multiple submissions until the deadline and will have access to the Originality Report.

Posters, SCARP papers and abstract pages are to support demonstrations and presentation to internal boards of examiners, it is expected that SCARP abstracts will be published online on the SCARP Conference website: www.reading.ac.uk/SCARP (the site is to be updated to reflect 2015/2016 project regime).

Best poster/demonstration(s) may be reused for future University Open Days and Visit Days.

As each project is different students are strongly recommended to consult project supervisor in advance to define an appropriate paper structure. A good time to do this would be around week 5 or 6 of Spring term if not sooner. Students are reminded that though supervisors may give general advice on writing academic papers **supervisors are not allowed to proof read papers**.

Final Project Report

The final project report and logbook must be handed in the first week of Term 9, **no later than 10:30am on Friday 22nd April 2016.** Each student must write an individual report (following the School Style Guide for academic technical reports). A specific guide and template is provided on Blackboard to assist with writing the report.

Students are reminded that:

- The final report should explain the motivation and context for the project and should refer to similar existing products and systems.

- Following on from the point above, the final report must include a **separate literature review section** that discusses the existing literature that is relevant to your project **with full and proper referencing**. You should aim to refer to a range of material including academic papers, text books, articles and existing product descriptions.

- The final report should include a section addressing the Social and Legal, Health and Safety and Ethical issues initially outlined in the project initiation document.

- The final report should include an analysis and evaluation of the work against the original goals, as set out in their project initiation document, and that they will lose marks if this is not included.

Two stage report submission process

All final reports are checked for plagiarism. For that reason the final report submission is in two stages:

- All students must submit their final report electronically on Blackboard through a TurnItIn assignment "SE3IP11 Final project report" (guidance will be provided in the TurnItIn assignment available on Blackboard under "Electronic Submissions"). The system will then automatically generate a "TurnItInUK Originality Report" that students must print (you may print double-sided, up to four pages per sheet) and attached with the "Statement of Authorship" to their final report. Students should note that:
    - *the TurnItin Assignment will close at exactly 10:30am on April 21st, 2015 and*
    - *a second TurnItin Assignment for late submission will then be available to students from 10:31am.*
- Then submit in the Student Information Centre (G47) (project logbook must also be submitted) **no later than 10:30am on Friday 22nd April 2016.**

Students must realise that this is not an instantaneous process so you must manage your time well and do not leave final report submission to the last minute. For illustration a detailed process using TurnItIn on Blackboard and submission in G47 was as follows for last year students:

- Under "Electronic Submissions" you will see an item called "Final Project Report".
- Click on "View/Complete".
- Click on "Show details" link to see specific instructions if any.
- Click on the "Submit" button to enter the submission page.
- Fill in the online form as appropriate and click the "upload" button to upload your final report (must be less than 20MB). Uploading may take few seconds.
- Once uploaded a "Preview paper" of your report will show containing ONLY textual data. Check that the preview corresponds to your report then...
- Click the "Submit" button.
- If the submission is successful you should see a copy of your TurnitinUK Digital Receipt, click on the "Go to portfolio" link.
- You are back in your assignment inbox & portfolio page, click on the "Show details" link, then click on the "Originality Report" box giving the similarity index percentage (e.g. 7%).
- If the box shows shaded in grey, you must wait till Turnitin has finished processing your report.
- A pdf file is automatically generated, click on the link if it does not open automatically.
- In the TurnItIn Document Viewer window, click on the "Text-Only Report" icon at the bottom right. The Originality Report window opens, click on the "printer" icon, this will open a window containing a preview of the print version of the originality report.
- You MUST PRINT this report (you may print double sided, up to 4 pages per sheet).
- Attach your printed originality report with the "Statement of Authorship" to your final report.

- Finally, submit in the Student Information Centre (G47) (project logbook must also be submitted).

The detailed process for 2014/2015 submissions using TurnItIn on Blackboard and submission in G47 will be confirmed to students closer to the deadline.

Demonstration to Internal Board of Examiners

A viva with the Internal Board of Examiners will take place in week 1 of Term 9 when individual projects will be assessed. Attendance is compulsory. This assessment is totally independent and relies on expert internal examiners other than supervisor. An internal examiners panel will normally comprise a Chair (senior staff), and at least a further two experienced staff.

Conference colloquia

A one-day School Conference for Annual Research Projects, SCARP 2016, is to be held in May/June of Term 9. The 2015 conference website is available at http://www.reading.ac.uk/SCARP. The conference provides students with the opportunity to present their work in a formal conference setting. Student presentations will be assessed by Internal Board of Examiners. Attendance is compulsory.

External Examiners' Project Viva

All project work is made available to External Examiners to scrutinise. A final viva with the External Examiners may be held by invitation during Term 9.

Project Work Archive

All students are to submit an archive of their project work, containing all the relevant project material, i.e. project initiation document, SCARP conference abstract, paper and presentation, final report and additional technical documentation (scanned if necessary), source code and A2-poster, accompanied by a file explaining how to run the project demonstration.

Following External Examiners' visit, on submission of their CD/DVD/Flash drive archive of their project work in G47, students can collect their Logbook and Final Report. Students who fail to submit the project archive by the end of Summer term, will have their logbook disposed of and the hard copy of their final report archived. Access to hard copy of final report will no longer be possible once archived.

- CD/DVD/Flash drive project archive that contains ALL project material:
- Properly labelled with name, student number, degree in full, project title and supervisors name, date.
- The CD should have a README file with ID as above and description of the directories:
  - PROJECT REPORTS:
    - Project initiation document, pdf file
    - Final report, pdf file
  - HARDWARE-SOFTWARE:

- Any relevant hardware technical documentation (schematics etc)
- Source code(s)
- Executable(s)
- SCARP:
  - SCARP paper, pdf file
  - SCARP presentation (MS powerpoint)
- DEMONSTRATION:
  - Poster (powerpoint file)
  - A file explaining how to run your demonstration
  - Relevant executable(s)

Project Assessment

In order that students may best judge how much effort they should put into their Part 3 project, the following breakdown of marks for a typical project has been suggested.

		BSc/BEng
i.	Project Initiation Document and RA2 form (if late submission)	-5%
ii.	SCARP (Abstract, paper, presentation)	5%
iii.	Project demonstration to Internal Examiners	20%
iv.	Final report	55%
v.	Conduct:	10%
	Project management: PIDs, LogBook, professional attitude, initiative, work over the year	
vi.	Innovation/academic challenges	10%

NB. The above breakdown of marks is for guidance only.

Appendix 1 - Risk Assessment

Extracted from Systems Engineering - Student Area H&S Code August 2011

The Management of Health and Safety at Work Regulations 1992 (revised in 1999), require employers to make a suitable and sufficient assessment of the health and safety risks to employees and non-employees, arising from their work activities. 'Suitable and sufficient' means that assessments should:

- Be comprehensive and cover the hazards and significant risk of all work

- Be systematic in the way in which hazards are identified, risks are assessed and controls are implemented;

- Include risks to health as well as safety, and include risks to mental health;

- Take account of risks to non-employees, which in our case includes students, visitors, contractors and guests at events;

- Identify groups of people who may be particularly at risk, such as young or inexperienced persons, expectant mothers, visitors unfamiliar with the premises, and people with disabilities or health conditions.

- Ensure the findings of assessments are brought to the attention, in a meaningful and comprehensible way, of those exposed to the risks.

In a Health and Safety context risk can be thought of as a product of the severity of a particular hazard multiplied by the likelihood that harm will result. Risk is managed by the application of suitable control measures to reduce the risk to acceptable levels. Once control measures have been applied the residual risk can then be assessed. Most health and safety legislation requires employers to reduce risk 'so far as is reasonably practicable'. This means that the aim must be to strike a balance between the level of risk on one hand, and the physical difficulty, time, effort and expense, which would be involved in taking steps to reduce or avoid the risk, on the other hand.

Control measures are designed and applied using the principle of the hierarchy of control. The hierarchy is descended in order until a (reasonably) practicable and sufficient way of managing the risk is found. This may involve one, more or all levels of the hierarchy. Note that PPE is at the **bottom** of the hierarchy and is therefore a last resort.

The hierarchy is:

- Eliminate (e.g. modify the activity so the hazard is not present);

- Substitute (find a less hazardous method/substance etc...);

- Reduce risk at source (includes physical removal from risk, engineering controls, extraction, provision of proper equipment, e.g. desks);

- Administrative controls (training, safe systems of work etc...);

- Personal Protective Equipment.

Research work is not and never has been exempt from health and safety legislation. However, it is recognised that as the research environment may give rise to unknown or new risks. It is also recognised that the need for researchers to characterise aspects of a process may bring them into closer contact with hazards. Therefore it is perhaps more difficult to risk assess research work than routine work activities, nevertheless; the basic principles, as outlined in this guide, must still be applied and risk assessments must be carried out for all research projects. This process should commence at the earliest opportunity to maximise the potential for designing hazards out of the research activity.

Employers are legally obliged to record the 'significant findings' of each assessment. While the legislation does not prescribe how risk assessments should be recorded, there are specific requirements about what is recorded. At the University, risk assessments should be recorded on one of the forms designed by Health & Safety Services. Two forms are available: RA1 is intended for fairly simple assessments where the amount of detail required is limited but the activity or area gives rise to a number of different, but fairly straightforward hazards. RA2 is a more comprehensive form most suited to more complex or higher risk tasks or projects when you wish to consider an activity or piece of equipment in detail. Training in the risk assessment process is provided by Health and Safety Services and advice is also provided in the form of University of Reading Safety Guide 4.

Risk assessments for generic or communal areas (e.g. offices, common room) or for very generic risks (e.g. manual handling) are made by the Area Health and Safety Coordinator. Display Screen Equipment assessments are managed centrally in the School but done by individual members of staff via computer based training. Fire risk assessments are managed by the Fire Safety Officer but all activities which contribute to a fire risk must be assessed and controlled locally. For specific activities / locations, the task of actually carrying out risk assessments is usually delegated to those people who are most familiar with the activity, project or equipment being assessed or who create the risk. These individuals, who must attend relevant training, may be local managers, academic supervisors or individuals directly involved in the work; they will understand the nature of the work and are best placed to ensure that on a day-to-day basis, risks are adequately controlled. **It is not the responsibility of the Area Health and Safety Coordinator to perform specific risk assessments.** The AHSC will however advise individual assessors where appropriate. It is trusted his experience and viewpoint will be respected.

The findings of risk assessments **must** be communicated to those affected by the risks identified, particularly if the control measures require cooperation on their part. This includes any new staff or student who may commence working via an induction process. All staff, new and existing are issued with an Area Health and Safety Code on an annual basis. This details the major risk in the School and gives outline information as to their management. This can also be found online via the Blackboard SSE Staff portal. All risk assessments where risk is on-going are held on the School's Risk Assessment Register. This is reviewed annually and a copy sent to Health and Safety Services. This can be viewed via the Blackboard SSE Staff portal with a click-through to the specific risk assessments.

Appendix 2 - Research Ethics

Research Ethics

Procedures for undergraduate project proposals

Does my project need "Ethical Approval"?

The University Research Ethics Committee is tasked to:

 ...assess the ethical propriety of all research using human subjects, human samples (however obtained) or human personal data to be undertaken in the University...

Guidelines are available on the web at:
http://www.reading.ac.uk/internal/res/ResearchEthics/reas-REethicshomepage.aspx.

There is a list of the sorts of projects that require approval in the guidance document, but

- **any project involving invasive procedures, including those involving implants of any kind,** and

- **all projects that involve the taking of biometric readings or subjecting bodies to physical shocks of any kind**,

will require ethical approval. If you are in any doubt as to whether your project might need approval, please contact the Head of School as soon as possible for guidance.

If your project needs "Ethical Approval"

You need to submit your proposal to the Head of School for consideration. Whilst the Head of School may be able to approve the project directly, it may need to be considered by the full University Research Ethics Committee. As such proposals should be prepared according to the guidance available in the "What do I need to do?" link on the webpage above, which takes you to the following page.

http://www.reading.ac.uk/internal/res/ResearchEthics/reas-REwhatdoIneedtodo.aspx

To consider a project the Head of School will need to see:

- A completed *Project Submission Form* (guide template available in WORD format as Annex B on the webpage above)

- An appropriately worded *Consent Form* (guide template available in WORD format as Annex C on the webpage above)

- An *Information Sheet* (which can be combined with the Consent Form to form a single document) detailing the following information (as taken from the Committee guidelines):

(c) The Information Sheet must be on headed notepaper and include a contact name and telephone number. If any of the project investigators are students, this information must be included and their name provided.

It must be written in language that is appropriate to the subjects and can be easily understood by them. It must include a summary of the research to be undertaken and its purposes together with a full and clear account of what will be required of the subject. Serious consideration should be given to consent procedures for minors even though consent will have to be sought from parents, guardians or other responsible adults.

(d) The following points will need to be covered in the Information Sheet:

(i) How the participants are being selected;

(ii) The arrangements for informing each participant's General Practitioner, if necessary;

(iii) The arrangements for expenses and other payments, if any, to be made to the participants;

(iv) The arrangements to allow participants to withdraw at any stage if they so wish;

(v) The arrangements to ensure the confidentiality of any material collected during the project, and arrangements for its storage and eventual disposal;

(vi) The arrangements for publishing the research results and, if confidentiality might be affected, for obtaining written consent for this;

(vii) The arrangements for providing subjects if they so wish with the research results;

(viii) A standard statement, indicating the process of ethical review at the University undergone by the project, as follows:

'This project has been subject to ethical review, according to the procedures specified by the University Research Ethics Committee, and has been given a favourable ethical opinion for conduct'.

SUBSEQUENTLY, SHOULD THE PROJECT BE REFERRED TO THE UNIVERSITY COMMITTEE THIS MAY BE REVISED TO:

'This application has been reviewed by the University Research Ethics Committee and has been given a favourable ethical opinion for conduct'.

Should the project have been subject to other similar procedures (such as NHS ethical review), then this should also be indicated.

A copy of the Information Sheet/Consent Form must be provided for retention by each participant.

These documents should be sent in electronic form to the Head of School who will make a judgement, perhaps after consultation with colleagues, as to whether or not the project can be approved in the School, under the Research Ethics Committee "exceptions procedure". Should this be the case, the Head of School will arrange to have the various forms signed and retain the documentations as required.

What happens if my project needs to go to the Committee?

The Head of School will normally advise you within two weeks of submission whether or not your project can be approved without referral to the Committee. If the Head of School judges that the project needs referral, the timelines will follow those set out in the guidance webpages at the links above.