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| WelTec Primary Logo CMYK | School of Business and IT  Bachelor in Information Technology  (BIT 2018) |

IT7351 Project

2018

Course Outline and Guidelines

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# Summary

Guidelines for the student project teams, regarding the issues and procedures for administration of the IT7351 projects.

This document is available at: S:\Courses\IT7351\Student Briefing 2018 v1.DOC and on the Moodle session for the course.

# Course Outline

|  |  |
| --- | --- |
| Course Number: | **IT7351** |
| Title: | **PROJECT** |
| Level: | **Level 7** |
| Stage: | **Stage 3** |
| Credit Value: | **45 credits** |
| Duration: | **Approximately 450 learning hours**  **Made up of approximately 25 hours tutorials**  **425 hours directed study** |
| Prerequisite: | **240 credits at levels 5 and above with one level 7 paper and IT6268**  Projects will be approved by the Programme Manager |

## Project Co-ordinators

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Generally all times are by appointment – make appointments with Robert at [www.sutclirl.youcanbook.me](http://www.sutclirl.youcanbook.me) For a quick question catch me after any lecture, lab, tutorial or via Email.

If there are any issues that I cannot deal with, please refer to the Associated Head of School, Tony Gan or Head of School Mary Proctor via the reception in Tower level 7.

## Duration

This is a one trimester programme with preparation briefings during the trimester prior to your enrolment. These briefings (tutorials) help students prepare for finding projects, forming teams, and thinking about what will be required. Attendance is not compulsory but highly recommended.

Note the non-teaching week for the mid-trimester break starting 14th April (which includes Easter) returning 30th March, ANZAC day (observed 25th April), and Queens Birthday 4th June, the non-teaching week for the mid-trimester break starting 27th August, returning 3rd September, and Labour day (observed 23rd October), 2 non-teaching weeks for the end of year trimester break starting 22nd December, returning 7th January, and Wellington Anniversary Day (observed 21st January) and Waitangi Day (observed 5th February) will have no classes.

## Aim

* To provide students the opportunity to research, select, integrate and apply a range of techniques and technologies to solve a workplace problem

## Learning Outcomes

On completion of the course the student will be able to:

1. Interview the project sponsor and produce a proposal for a project.
2. Demonstrate appropriate interpersonal skills, especially team working, co-operative methods and good communication with team members, project sponsor and advisor.
3. Appreciate the techniques and apply the knowledge gained during the whole BIT programme to produce the system/application.
4. Demonstrate good project management skills and exercise tight control in all aspects of the project.
5. Carry out a concluding review of the project with the sponsor.
6. Produce relevant documentation that fully describes the project. For example; design, implementation, installation, testing, training, support, maintenance, administration, user manual and help documents.
7. Present the project including a demonstration of the system to a knowledgeable audience.

## Assessment Pattern

There are 4 assessments – The Proposal (due around week 3), audits (2, conducted in weeks 5-6 and 7-8), and a final panel interview/review of materials. Assessment proportions are suited to the individual project, and are usually:

**IT7351**

|  |  |  |
| --- | --- | --- |
| **Category** | **Learning Outcomes** | **Weighting** |
| **Project Proposal** | 1 | 10% |
| **Audit Reviews** | 3, 6 | 10% |
| **Development** |  |  |
| *Implementation of systems methodology* | 3 | 10% |
| *Analysis and Design* | 3,6 | 10% |
| *Testing* | 3,6 | 5% |
| *Development practices* | 3 | 15% |
| **Delivery** |  |  |
| *Training* | 3 | 5% |
| *Implementation support* | 6 | 5% |
| **Self Assessment** |  |  |
| *Project Management* | 2,4 | 5% |
| *Individual Report* | 3 | 10% |
| *Presentation* | 7 | 5% |
| **Client Evaluation** | 2,5 | 10% |

In order to pass, a student must gain 50% or more of the total available marks.

Results will be recorded as A-E.

Grades are:

90%-100% A+

80%-89% A

75%-79% B+

65%- 74% B

60%-64% C+

50%- 59% C

45%-49% D+

40%- 44% D

35%-39% E+

0%- 34% E

## Assessment Timetable

**For Students Commencing March 2018:**

|  |  |
| --- | --- |
| **Date Due** | **Application/Assessment** |
| Some date before 5th March | First Bid for Project |
| 23rd March\*, or sooner | Project Proposal |
| 11th June | Documentation Submission |
| 29th June or by arrangement | Panel Interview |
| To be announced | Presentation |

\* dates negotiable

**For Students Commencing July 2018:**

|  |  |
| --- | --- |
| **Date Due** | **Application/Assessment** |
| 1st June\* | First Bid for Project |
| 3rd August\* | Project Proposal |
| 23rd October | Documentation Submission |
| 5th November to 9th November or by arrangement | Panel Interview |
| To be announced (usually middle of November) | Presentation |

\* dates negotiable

**For Students Commencing November 2018:**

|  |  |
| --- | --- |
| **Date Due** | **Application/Assessment** |
| 12th October\* | First Bid for Project |
| 30th November\* | Project Proposal |
| 21st February | Documentation Submission |
| Week of 25th February, or by arrangement | Panel Interview |
| To be announced | Presentation |

\* dates negotiable

## Recommended Reading

*Highly Recommended*:

Dawson, C., Projects in Computing and Information Systems (2nd ed.) Addison Wesley, 2009

*Recommended* - all texts from supporting courses:

Schwalbe, K., *Information Technology Project Management* (4th ed. To 8th ed.), Thompson, 2006-2016.

Burke, R., Project Management: Planning and Control Techniques (3rd ed.), Promatec International, 1999. (4th edition is also suitable)

*Harvard business review on managing projects*. Boston : Harvard Business School Press., c2005

Jack R. Meredith, J. R. and Mantel, S. J. *Project management : a managerial approach*, 6th ed.

Hoboken, N.J. : John Wiley, 2006.

Project Management Institute. *A guide to the project management body of knowledge (PMBOK guide 5rd ed.*) Newtown Square, Pa.. : Project Management Institute, 2013.

Rosenau, M. D. and Githens, G. D. *Successful project management : a step-by-step approach with practical examples*. 4th ed. Hoboken, N.J. : J. Wiley., c2005.

Verzuh, E. *The fast forward MBA in project management*, 2nd ed. Hoboken, N.J. : John Wiley & Sons., c2005.

Wren, A. *The project management A-Z : a compendium of project management techniques and how to use them*. Aldershot, U.K. : Gower. , 2003.

*Applied Research Texts:*

Burns, R., Introduction to research methods (3rd ed.), Addison Wesley Longman, 1997

Dawson, C., Practical research methods: a user-friendly guide to mastering research techniques and projects. How To Books, 2002.

Grix, J., The foundations of research : a student’s guide. Palgrave Macmillan, 2004.

Leedy, P., Practical Research Planning and Design (6th ed.), Merrill, 1997.

Walliman, N., Baiche, B., Your research project: a step-by-step guide for the first-time researcher, Sage, 2001

### Useful Web References

http://pmforum.org

<http://www.pmi.org/Certification.aspx> <http://managementhelp.org/projectmanagement/index.htm>

## Tutorial Timetable

* **Preceding your enrolment:** One Tutorial per week, commencing at week 4 (approximately) during preceding Trimester – watch the notice boards.
* **During your enrolment:** One scheduled tutorial class
* **Trimester Tutorial Topics** will be set as required. Some tutorials are scheduled “on-demand”.
* **Contact hours** are expected for Advisor meetings, audits and assessments, some of which students will schedule.

**The Course time scale is fixed.** The delivery date to the assessment panel is fixed and work conducted after that time is outside the course and outside assessment consideration without prior agreement.

## General Requirements

Students should read this entire document several times during the Course, and ensure that they comply with the relevant requirements and recommendations.

***Trimester 3 / Summer Projects***

Projects undertaken over trimester 3 (summer) have a number of important limitations:

Less staff around, less consistent advisor support, more erratic access to facilities (some system shutdowns happen over summer for development and deployment of teaching systems), more distractions (nice weather, friends in holiday mode, festive occasions), and smaller choice of teams and projects. It is your task to plan for and work around these issues.

In our experience, projects are more likely to fail over this period than in any other. Only students who are strong academically (minimum B average) AND well-motivated AND good independent workers may attempt a summer project. All others should enrol for a trimester 1 or 2 project. Just needing or wanting to complete the degree sooner is NOT sufficient motivation for success.

# Introduction to IT7351

The IT7351 Project is the final activity in the BIT degree programme. This document, and feedback from advisors and clients, forms a substantial direction, but the detail of the actions needs to come from the student.

**Objective:** Demonstrate ability to apply acquired knowledge, judgement and skills expected of a graduate in Information Technology. Provide evidence of the ability to combine and apply the methods and skills taught throughout this degree, and develop new skills where analysis recognises a gap.

In the majority of cases, the project will deliver a working commercial system but in some instances the need will be for an unconventional application, which will require project tasks beyond the simple design and development of conventional systems. For example:

* Several clients need the project team to study recent developments and project future requirements in the form of a ‘Strategic Plan’ before embarking on the specific system tasks for the project. For students, this is a chance to demonstrate management level thinking and their own breadth of knowledge.
* It may be more effective to conduct a study of existing solutions to use packages or ideas already applied by other developers, rather than assume the need for a tailored solution. (Analyse the existing evidence)
* Technical, legal or operational feasibility of some project elements may be debatable and need to be established as part of the project, rather than assumed at the outset. (Analyse the existing evidence)
* Technology aspects may be unknown at the outset, especially interfacing with outside hardware, software or systems
* Client technical knowledge will vary a great deal. Client approval is required and both the team and the client will sign the proposal document.

1. Some clients will be able to discuss and agree on user requirements and project scope to the level of providing a ‘Technical Specification’. The team will need to satisfy itself that the client’s view of the system is feasible.
2. Some clients will provide less detailed information in a narrative style, both written and oral. In these cases the team will need to produce the ‘Technical Specification’ and agree on it with the client

**Expectation:** This is the course where all the previous experiences, both academic and life, are exercised. The student must drive the relationships, the processes, and the detail, to achieve the project goals. They must do more than just what the client or advisor demands, they must strive to do a professional job.

Students may find themselves incorporating new technologies and coming to terms with areas of application with which they are unfamiliar. No new material is deliberately introduced in the project course,

Guidelines state many requirements in a descriptive manner, but how actual achievement is done is up the students. We expect appropriate use of standards, good industry practice, templates, research and common sense

**Challenges:** For many is that this level of course requires the student to “Complete self-management of learning and performance within dynamic contexts” and take “Responsibility for leadership within dynamic contexts” (the NZQA definition of skill sets to be shown in level 7). We don’t tell the students all that they must do.

# The Project

The project includes activities from the initial study of project scope, through all development phases to the delivery of a tested, reliable, maintainable and fully documented working system (or why it did not work).

There are several important aspects of the course:

* **Project proposal.** At the start of the project, the team and the client must be clear about what they aim to complete and deliver (what is included and what is excluded)
* **Milestones**.
* Students form teams during the trimester prior to the course.
* System Proposal to be agreed with client (if possible) before commencement of the course, or shortly into the course.
* Milestones to be assessed as they occur
* System delivered at least 2 weeks prior (recommended) to the submission date to allow client hands-on evaluation for at least 2 weeks
* System reviewed and assessed during examination week by Panel Interview, Documentation and Product evaluation, and student Presentation

**Auditing process:** The project is supported by a monitoring and Advisory process, and administration is checked (by an audit process).

**Responsibility:** The work is largely self-directed, and the student team is responsible for all decisions made in the project. This is as close to real industry conditions as we can get, whilst satisfying academic requirements.

## Finding Projects

Each student is encouraged to find one or more suitable projects. School of Information Technology staff will also find as many projects as possible. Projects, and the prospective client organisation, are scoped by a staff member meeting with the prospective client and estimating:

* the client requirements,
* likely project profile
* a reasonable chance of successful development.

A briefing document for prospective clients may be found at:

S:\Courses\IT7351\Client Briefing.doc

The available project ideas are summarised and made available on the Moodle site. There are always other ideas and talking to staff such as John Gould, Evan Keats, Ian Hunter, Clement Sudhakar and Paul Bryant is highly recommended. Many projects are little more than identified opportunities at the outset, and the scope can vary widely depending on the team numbers and skill set of the students.

**New initiatives:** As a starter, look at your own life and interests, family connections, things people you know actually need.  Discuss your ideas in the project briefing classes, and seek approval from Robert or Glenda.

**Intellectual property considerations** will be different depending on the input from others, including WelTec staff. Projects that can lead to capturable benefits for businesses or society with further development, are likely to be fostered for future work. They may be identified as falling within Weltec’s intellectual Property (IP) policy. Your supervisor will identify such projects.

**Student as Project Client:** You could be the project client, and work on the team as well. In this regard ‘Speculative’ projects are considered if the project idea is:

* Sufficiently large for at least two people (800+ hours of technical work)
* Not too hard/new
* Relevant to your studies
* Must be mostly independent.  This is a project YOU manage, not work experience.
* Must have a point/purpose - like a specified market niche or unique/customised set of requirements.  It must be a real project! This would require detailed investigation and development of Requirements on your own time, clearly identifying niche, purpose, business functional/process requirements etc.

Project not satisfying the project co-ordinators on all these counts will not be approved.

## Project and Team Allocation

Students form teams of generally up to 5 members. Students bid for projects in teams with each team stating their strengths and limitations (appropriate to the project needs) and the reasons why they should be allocated to their chosen projects (identifying first and second choices). A sample bid document may be found at: **S:\Courses\IT7351\Bid.doc** and on **Moodle.**

Students are not guaranteed to be assigned a project or team of their choice. Students who find, or who proposed, a project have the first option provided that they have assembled a team with suitable breadth and depth of skills, and are not required by WelTec for a high priority project. Projects found by a student are not generally available for other teams to bid for, unless the finder chooses to release it.

Projects and teams may be allocated by WelTec when appropriate high priority projects are available, failing that team and project allocation is informal and by agreement as far as possible

## Ethical Conduct

Students are required to conduct themselves in an ethical and professional manner. Where there is commercial sensitivity for the project or any related activity for a client, the student is required to raise the issue of a confidentiality agreement with the client. This agreement should allow all project materials to be viewed by the assessment panel, but those materials designated sensitive will not be retained by WelTec. Project reports and individual reports must not contain sensitive material as they will be held by WelTec. Students should also avoid defamatory or libellous comments about other parties, but are encouraged reflect on how external behaviours and incidents affect themselves and other parties.

Regardless of any confidentiality agreement, students are instructed not to discuss any facet of the client situation with anyone other than the client, the project team, project advisor, project co-ordinator or School of IT manager. Casual comments regarding the client operations, standards, financial position, in fact any comment related to their business can affect their business relationships, and perceptions of their stability or suitability.

Ethical conduct also covers issues of academic dishonesty – plagiarism, falsely attributing work product, falsifying records (particularly timecards, minutes etc), and the mistreatment of other students and as defined in the Student Code of Conduct.

## Internal Team Disputes

Generally speaking the onus is upon team members to resolve any intra-team issues or conflict. Check the working agreement (team contract) that you made at the beginning.

**On no condition may team members expel a member of their team**, the process for dealing with serious internal team disputes is as follows;

1. Attempt to resolve issue within the team with advice from your Project Advisor. Issues that crop up and are subsequently resolved by the team shows maturity and professionalism and will give a “good impression” to the marking panel. For any serious issues with health and safety implications, escalate immediately to your advisor or Robert or Glenda.
2. Document all issues that come up (usually in Progress Reports). Before any action is taken by project advisors, project coordinator or the programme manager a well documented history of attempts to internally resolve the issue should be able to be produced.
3. If after a short period the problem has not been resolved satisfactorily inform your advisor who will attempt to work through the issues with the team.
4. As a last resort the project coordinator may deal with the issue.

# The Monitoring Process

When assessing the project team it is important that each member’s contribution is known and identifiable. The teams may comprise of ‘leaders’ and ‘followers’, generalists and specialists. A team consisting of mixed abilities will fare very well in industry; followers are needed just as much as leaders.

**Expectations:** The project proposal information should state the project type, the skill requirements, the objectives and goal of the project. A project plan will be produced by the team showing activities, responsibilities and deliverables each student will be involved in specifying either a major or minor role. Each student should have a clear idea of what is expected of them. i.e. their contribution to the project, and standards or agreements (perhaps in the form a team contract) and to sign on to it.

**Timesheets:** To allow the project progress to be monitored each team member will produce a weekly timesheet and progress report. This timesheet will contain the following details; team and member name, project task carried out (or a descriptor if there is no plan tasks yet, otherwise it is ONLY a plan item) and the time spent on each activity that day. These timesheets will be made available at the advisor meeting along with the other project documentation, minutes, correspondence, plan updates in the form of a progress report.

**Agendas**: for meetings will be prepared in advance of all meetings and minutes will be submitted as soon as possible after the meeting has taken place.

**Assessment:** The main reason for collecting this data is so that each student can be individually assessed if required. The activities on the timesheets and progress reports can be apportioned and the effort expended by each individual team member can be measured. Individual engagement with the process can be assessed by individual log entries, and work issues documented in meeting minutes and progress reports. Any team member not performing to an acceptable standard can be identified. This will make it possible for the team to identify and support/coach underperforming team members, and ultimately if it continues for the assessment panel to award differing grades to members of the same team. Similarly, poor performance of individual members that seriously affect the project outcome can be taken into account when assessing the remaining team members. The data can be stored in a project metrics database, which can then be used to improve the project scope requirements for future projects.

## The Advisor’s Role

The Advisor is usually a staff member, and sometimes will chosen by agreement with the team. The team is to be pro-active in the relationship, although the Advisor may offer unsolicited advice on occasion. The Advisor does not assess the project. The Advisor will produce their own written report and may be the contact that obtains the client’s or sponsor’s feedback to complete the project documentation for the assessment panel. The assessment panel, to augment the assessment process, may interview the Advisor. The advisor is usually allocated a week or two into the project so that the students thoroughly engage with the initial requirements and the Proposal document, and are not trying to just do whatever the Advisor advises without a solid personal understanding.

Allocating an Advisor to each team should enable the following:

* A discussion point to provide a reasonable amount of resource in helping to resolve any problems that arise.
* The Advisor may exercise experience and judgement to suggest possible potential problems that the team may like to consider before proceeding on a course of action.
* At the minimum, fortnightly meetings must be made with the Advisor, at a time acceptable to the advisor. Weekly is preferred until a team is well established. The Advisor needs to have regular contact with the team and it is important that these contacts are documented for later recall as needed. It is part of the process that each team has up to one hour per fortnight of the Advisor’s time, although the Advisor may be willing to offer additional time, and meet weekly for teams that need it. The Advisor will require an agenda in advance of the meetings, the minutes of the previous meeting, all intervening progress reports and any other relevant project documentation.
* Should the team require resources or technical help, the team should see their Advisor first so that they can be directed to the right area or person. Material resources can be requested from the project Co-ordinator.
* The students must involve the Advisor in a quality assurance role for nominated milestones. This is not to provide or govern content but to observe that a minimal standard is at least reached. The Advisor’s approval does not present a guarantee of results, but is intended to ensure that at least the work sent to a client is of an appropriate nature.

The Advisor does not guarantee success in any part of the project. They are merely a resource for the project, and will not be the definitive word in any matter. The team is obliged to decide whether to comply with suggestions from their Advisor, and should also take into consideration the best practices used in industry and the material taught in the degree. Team decisions must be recorded in meeting minutes.

A meeting with the Advisor could cover:

* A Project Progress report (try the Typical Student Progress Report in the templates directory)
* Problems emerging and the most suitable solutions for them
* Progress in Analysis and Design
* Review of Testing processes
* Contribution to the team effort by each member
* Client contact and the results achieved from that contact
* Any WelTec co-ordination or resource issues which the team need to resolve
* Review of minutes of meetings, agendas, draft documentation etc.

The Advisor will present a report to the Assessment Panel.

### Skills Workshops

The team is expected to attend a timetabled skills workshop if it is offered.

The workshops are usually offered on topics such as meeting management, team/relationship management, research methods, and technical writing.

## The Auditor’s Role

It is the teams’ responsibility to maintain all records, not the Advisor’s. There will be a risk-based audit procedure introduced, with the first audit in weeks 5-6, and a follow-up audit 2 teaching weeks later. The audits will ascertain if appropriate business processes are being undertaken, if not the Auditor may suggest remedial action. The audit process does not look at the content of the project, but its paper and electronic trail, management of information, and collection of appropriate data to enable useful final reports to be generated at the end of the project. The audit process adds to the material proof of the performance of the team.

Audits are more fully discussed in the Project Audit section.

# Project Procedures

## Methodology

High quality projects generally have strong methodologies to guide them. Students should follow a defined methodology in all instances – the methodology needs to be explicitly stated in their proposal and/or project documentation, and the version adopted rigorously adhered to.

Ensure that the methodology adopted is appropriate to the activities - it may be more appropriate to use different methodologies for different phases of the project. For example a RAD style methodology for development may be suitable, but implementation, final testing, training etc may be better served using some other methodology based on the SDLC model. You may expect to be challenged on your choice and understanding of the methodologies you use. Strong methodology use usually results in high performing projects and high marks.

**Analysis enables design, which in turn enables implementation.**

**Analysis:** Every methodology will use particular analysis activities to explore, develop and understand the requirements, well beyond the initial ones given at the start of the process. These tools and techniques will develop cohesive documentation to express this analysis, even if it is developed in phases, scrums, iterations or whatever instances.

**Design:** Every methodology will use particular design tools and techniques to design the product. Whilst this may cover look-and-feel, navigation, information layout, interaction designs for more web-oriented applications, it will always include clear definition of the business rules, processes, users, and interactions. These tools and techniques will develop cohesive documentation to express this design, even if it is developed in phases, scrums, iterations or whatever instances. A product is not evidence of a design.

These analysis and design findings are a required report milestone, and thus should be reviewed with your advisor.

**Testing:** Testing practices will attempt to prove that the products and services meet the requirements, the design, and integration goals. In brief, a spectrum of tests with specific test data and outcomes are planned at design time. Tests are then conducted during implementation and outcomes are recorded and exceptions are managed.

Tests usually cover the spectrum of unit testing, module testing, system testing, user testing etc. The team must develop testing documentation as evidence – it is never enough to say “we tested that” or “I tested it as I wrote/built it”. There are marks explicitly for designing, planning and implementing testing. Clearly some situations demand more rigorous testing, but some testing against your design is always needed.

## Typical Project Deliverables

All the following items should be represented in the project documentation, though the content and methodology may vary from project to project due to the project needs.

In general, the project should encompass the creation of AT LEAST the following items:

### Initial Concepts

* System Proposal –This will determine, as far as possible, that the project is sized correctly and is feasible.
* Scope of Project – size, resources etc.
* Requirements Analysis – problems identified, possible solutions

### Development

* Analysis and Design – technical documentation of the development process and outputs
* Methodology and Techniques – standards, reasons for choice
* Training – documents
* Testing – plans and results, records etc.
* Implementation support – Plan, installation, maintenance procedures, environment specifications etc.

### Project Management

* Individual Project Report
* Advisor Report
* Group summary Project Management Report including Closeout Report
* Project Folder (agendas, minutes, correspondence, Project Diary, Individual Log etc.)

### Documentation and Presentation

* The project document set (as decided by the project team)
* Project presentation

### Client Satisfaction

* An acceptance form signed by the client accepting handover items, noting exceptions.
* Client feedback report
* System Demonstration at Client Site

These items will be incorporated into project documents, a sample of which is given in the Project Documentation section.

*Please note* that in many cases a bound collection of hand-written documents, check sheets etc is suitable. All materials for which electronic source is available must be supplied on a CD or pen drive accompanying the documentation set, but should be indexed and referred to in the paper materials.

## Project Management

**Methodology:** The utilisation of a comprehensive and reliable project management methodology, suited to the development methodology, is expected. Several factors are common to all methodologies and documents associated with them are listed explicitly in the required and suggested documents (see Project Documentation section). Other documents that arise from any methodology chosen should be submitted as well.

**Planning:** In order to achieve successful project management a whole series of meetings, consultations, investigations, implementations, etc are expected to take place. These are required to be planned, agendas issued, meeting minutes taken and agreed, with client signoff on all significant decisions and milestones. Maintenance of the project plan is expected in that tasks should be marked as completed, and actual effort and completion dates entered (at least for planning purposes). Forward planning should take place periodically to ensure that the project remains on track, and developing problems are caught and dealt with. Project phases should have a significant sign-off and forward planning activity associated with them.

The team is expected to have regular meetings with the client and their advisor, and occasional meetings with the project auditor. Beyond that, all time is up to the student teams to manage – they may work when it suits them, as long as the work gets done. Leaving work until the end is not considered a good or safe practice.

**Member Roles:** Likewise the team may assign whatever role they like to team members, and may rotate roles if desired and if it suits the project. As every team member is responsible for the entire project, they are advised to check each other’s work (for internal quality control) as they may well be assigned the mark arising from it. This then requires a significant degree of collaboration from the project team, and even seemingly, or initially, separate pieces for work are expected to be cohesive in development, product and presentation.

**Advisor Progress reports:** It is in the project’s best interest that all internal project issues (arising from planning problems, client actions/inaction, team relationships, technical problems, whatever…) are brought to the attention of the project Advisor, in a Progress Report. They should be able to add valuable insight, or direct you to needed support. This is part of good management practice – if you ‘tough it out’ and things go wrong then you are responsible for not managing it effectively.

**Document Management:** Managing the project also requires a process managing the work product, work materials in progress, and the deliverables. Make sure everyone has good access to the work product, and it is protected and backed up appropriately. Some form of version management is needed, and this can be a manual system or automated via services like SVN, Dropbox, Google Sites etc. Many of these systems can address multiple issues, but remember you have to protect both paper and electronic systems as well.

Every document or diagram produced on paper needs to be attributable back to its source, version referenced, author reference etc on every printed page. Failure to achieve these controls may easily result in re-work and wasted time.

### Failing Projects

Projects fail (that is, the project outcome according to standard measures, not academic assessment of the course) for many reasons, though usually because a problem was not recognised early enough and dealt with effectively. Typical causes of student project failure have been:

* Team member(s) not performing
* Team member(s) withdrawing
* Team relationship issues
* Technical problems
* Poor planning
* Scope creep
* Client not fulfilling obligations
* Developing situations not recognised
* Inadequate documentation

In all cases these may have been averted or controlled by use of the Project Management practices, advice from the project Advisor, referral to expert help, or corrective action. It is not in the interest of WelTec for the student project to fail, or produce an inferior product for the client. If asked for, advice and support will be provided whenever feasible but it will be the students doing the work.

**Change Management**: For significant deviations from the planned project requirements there are a number of alternatives that may be taken with due consultation

* Resize/re-scope the project (usually to deliver less product/functionality)
* Abandon the project
* Acquire additional resources
* Redesign the project around the new constraint(s)

You would not be the first student project to ‘fire the client’ because they have not been meeting their obligations, nor the first to suffer excessive project scope creep (Use change management methodology).

In the event of a decision to terminate, project consultation is required with the project co-ordinator. You will be advised on what to do. This may include several of:

* Completion of documentation
* Completion of certain elements of the project product
* Redeployment into existing projects
* A new project allocated
* Deferral of the project course until the next academic year (or completion whilst working in industry)

## Project Milestones

As projects vary widely, milestones may not coincide with any standard model. The project team must decide on the significant checkpoints during the project and the suitable recording methods e.g. a joint client meeting, submission of proposal copies for Advisor reading, joint application design session etc. The Advisor’s guidance will be useful during this process.

The milestones should be clearly identified in the project plan and the achievement of the milestones must be recorded. *Remember* - for Audits and at the end of the project, milestone documentation will be needed and be very useful in establishing the quality of the project management techniques. At least 4 milestones are expected, and they should be distributed throughout the project timeline, not clustered at the end.

Required Milestone Features:

* There must be at least 4 milestones, one of which is the System Proposal, another is Design Documentation. No more than 8 milestones are recommended.
* Milestones must be distributed throughout the project.
* All milestones must have some significant form of documentation associated with it. These may be design documents, prototype signoff, training acceptance, product delivery, acceptance of project phases etc.
* The Advisor must review the material produced to achieve the milestone. Once they perceive the quality/quantity to be adequate they then Approve the milestone (in addition to any Client related sign-off if appropriate). Advisor acceptance of this material does not guarantee pass marks, but will provide the team with some assurance that they are, in part, on a reasonable path.

Failure to achieve a milestone approval will result in the following activities:

* Any correction work necessary to complete the milestone conditions to the satisfaction of the Client and Advisor.
* Reworking the Project Plan to accommodate the loss of time and effort, with appropriate change control.

Failure to achieve a milestone the first time is not sufficient cause to lose marks. Failure to project manage your subsequent milestone achievement appropriately is a sign of poor project management skills and may be reflected in the final assessment.

## Project Proposal Explained

The first milestone must be the System Proposal. This milestone must also be approved by the Project Co-ordinator as explained below.

In all cases, the project team needs to have a clear plan prepared by around two weeks into their enrolment, this includes a proposal agreed to and signed off by the team and the client. Different projects will have different requirements and their proposal document will be correspondingly different.

The proposal should be reviewed with the course co-ordinator prior to being shown to the advisor or client. Generally you should make an appointment for this.

The following are **required** headings for a project proposal, with brief content notes to clarify the purpose. Those attempting an applied research project should read the section “Applied Research” for the variations one might expect:

1. **Executive Summary** (1 page max, executive briefing style – focus on “why, what, when, and costs/risks, and a little who)
2. **Project Personnel**

List the team, WelTec, and identify the clients, advisors and other parties to the agreement. Provide contact details.

1. **The Opportunity Context**

Discuss the project context (from market, client, and your own perspectives – this looks at the situation, problem domain, commercial responses, opportunities without mentioning your solution). Include an Organisation Outline of the client

1. **The Requirement**

List high level requirements – the clients’, the project teams’ (+WelTec’s), other parties (arising from a stakeholder analysis). Actual stated requirements only, not those arising from problem analysis or subsequent design (no inferred requirements like “because they said that, I need this” until substantiated by analysis and design). These will cover the business needs, process requirements, and identify the niche to project must address. Consider also areas of functionality, hardware, software, deliverables, timing, internal and external constraints in an initial scope. These are in effect the stated ‘Win’ criteria for all parties.

1. **Analysis**

Analyse or examine the requirement against context. Discuss the options or choices that arise. Really this is the analysis leading to the decisions on how to move forward, pick targets, methods etc. Suggest/recommend the final option or selection of viable options. Write it like analysis: problem, options, criteria, decision. At least cover the product environment, the development/testing environment, and the selection of methodology.

1. **Proposed System Outline**

Document the primary deliverable and its significant features that are proposed to solve the problem. Be concise, numbered feature lists are appropriate. This is the basis for initiating the next phase involving detailed design and is considered a preliminary scope and the major deliverable.

1. **Approach**

Technical/Development methodologies to be used to fulfil requirements, recognising any special variations needed. Reference all external standards or recognised methodologies followed. Feasibility analysis giving cost benefit, include real and operational costs, if appropriate (usually there are no costs, so simply state that, if appropriate).

1. **Organisation of Project**

List all parties identified with an area of responsibility and including authorisations (a RACI chart may be useful)

1. **Management**

List management practices and management responsibilities (meetings, sign-offs, communications plan, procedures like change control etc). Be explicit with practices in engaging with the client, to set appropriate expectations.

1. **Plans and Procedures**

Refer to your Estimated project plan (attached in an appendix), and give any associated budgets and supporting material. Note that this should be planned in detailed for the next phase, and somewhat lesser detail for further phases. A template Typical Student Project for Microsoft Project has been provided, but this will require re-working for team size, resizing tasks, and representing your technical methodologies. Other tools may be used.

1. **Staff**

List all staff required in the plan, including client staff, with an estimate of their utilisation from your plan (total hours and special date requirements, especially for clients, client staff, advisors). Give some detail about the client engagements.

1. **Deliverables**

List explicitly all milestones, then list all deliverables (usually clustered under milestones). Give dates for completion.

1. **Resumes (CVs)**

Brief resumes of students (one page each – try to use the same format)

1. **Relevant Background Information**

Any supplemental background information regarding the WelTec student project, project environment, client situation etc. Usually just references to appendices containing foundational documents and previous correspondence.

1. **Resources**

List all material resource requirements; for each identify who is responsible for delivering it, and when. If already provided, say so.

1. **Client Acceptance**

Sign off sheet for this proposal, and a statement authorising the commencement of the next identified phase. Include appropriate disclaimers and confidentiality agreement (usually the 3 indented paragraphs below). Signatures and dates for project team members and client only.

1. **Appendices**

Any useful material generated or discovered during this investigation of relevance to the project, product, requirements, industry, etc.

### Marking for the System Proposal

**Advisor:** The system proposal will be reviewed by the Advisor (as a standard Milestone assessment) and the Project Co-ordinator (or a tutor they delegate to the task) before being given to the client for their approval. If the work is deemed insufficient or of poor quality then Milestone Approval will be withheld until the problem is rectified (see Project Milestones section earlier). The students are instructed to NOT seek detailed proposal revisions by the Advisor. Often the Advisor allocation is delayed to ensure that the proposal is primarily the student’s work. These guidelines and project briefings should be sufficient for the student to determine their own process.

**Client Signature**: Once signed by the Client (have 2 copies that everyone signs, the client keeps one), the proposal should be forwarded to the Co-ordinator for marking. Marks will not be revised by subsequent presentations, and in most cases the student is best advised to press onward with the project rather than chase proposal marks. This mark may be overturned by the assessment panel in the final project assessment if the final version (including all subsequent change control) proves inadequate to the reality of the situation, or the panel notes substantial improvements.

Please note that WelTec (the advisor, the co-ordinator) is NOT a signatory to the proposal (unless WelTec is the client), it is an agreement between the students and the client. Do not specify any direct responsibility to WelTec except noting WelTec’s involvement with the academic assessment of your project in the requirements. Advisor approval is a form of academic quality assurance checking, and the proposal marking is an external quality assurance indicator. Neither should appear in your sign-off sheets.

### Limitation of liability, intellectual property and confidentiality agreements

*These may not be suited for your situation – please consult if you have any doubts.*

The following four paragraphs should be included on your signing page in your proposal. Please also attach to the appendices the Client briefing document (available online). If WelTec staff need to be involved in a confidentiality agreement we have a more comprehensive agreement, though such agreements are usually provided by the client. This is usually followed with a statement about what signing signifies (agreement and approval to proceed to the first kill-point - usually a milestone).

*All parties agree that this project is conducted on a best efforts basis, and the Project Team or WelTec do not accept liability for the performance of this agreement. The project client agrees that they have read and understood the ‘Client Briefing’ document with regard to responsibilities and obligations.*

*It is agreed and undertaken that all Parties:*

* *will hold in confidence all `confidential information' and,*
* *will not disclose the `confidential information', or permit it to be disclosed to an external party and,*
* *agree that disclosures to other project participants will occur only with the written permission of the other party, and,*
* *will not use, or permit the use of, the `confidential information' for any purpose other than for joint operations without first obtaining written permission to do so from the other party,*
* *will upon request of the other party return all Confidential Information (together with all copies) in its possession or control or in the possession or control of any of its officers, employees, agents or advisors, and*
* *may choose to mark information as ‘confidential’ where necessary.*

*The Client also agrees to allow the Project Team to use project materials for academic purposes, with due regard to confidentiality.*

*The client agrees that, in cases where the project concept, process, specification or any other proposal was devised by WelTec’s staff or students, and the implementation or extension of the results of the project are expected/speculated to generate commercial returns (IP, trademarks, licenses, etc), an agreement covering benefit sharing is required, in all other situations the Client owns the Intellectual Property of the work undertaken. This agreement will be made between WelTec and the industry partner. The Student and supervisor of the project will bring this to the notice of the R and E office.*

WelTec has available more comprehensive limitation of liability clauses, though these are generally provided by the client. These may be found in the S:\courses\IT7351\useful clauses.doc or on the Moodle site. These other clauses should only be considered where your analysis of the client suggests a more legal or formal approach is desirable. If used inappropriately, these sorts of clauses can add significantly to the approval timeframe of your proposal and the client will then be obliged to consult their lawyers about their liability. Please consult with the Co-ordinator before using them.

Some projects may require other Intellectual Property arrangements. You must consult with the programme co-ordinator before proposing alternative IP agreements.

### Signing Projects

Once a project has been reviewed (with the Co-ordinator and Advisor) it may be presented to the client for signing. It may still undergo a number of changes in review with the client – especially if the initial requirements interviews were lacking. Signing involves 2 copies – one for the client, one for the team. Everyone signs both, the clients keeps their copy. The team will then submit their signed copy to the Co-ordinator for marking. At the end of the project the team submits their signed copy, complete with any change control, to establish the goal, processes, and schedule agreed with the client.

## Project Recording

### Work Product

As a natural consequence of going through processes, procedures, using tools, developing versions etc. you should be collecting a variety of electronic and paper materials. These will not be ‘camera-ready’, may be hand written, or otherwise not in formal hand-in presentation formats. Date them and keep them to help prove your process in the academic hand-in.

**Research,** or even just reading, is a common activity in the early stages of a project. Students must be very careful when doing this, it can absorb many hours with little work product to show for it. Research also needs to be repeatable, and to develop questions, answers, bodies of knowledge, and other aspects of your project.

To achieve both these goals every student claiming hours for reading or research must have notes taken at that time that show the value or utility of the material reviewed (positive and negative), and a simple reference to it. Even if the work reviewed turns out *not* to be useful, the notes should show the all the places looked, anything interesting found there, and comments on its utility. These are easily compiled on an open word document that you use while you work.

### Project Time Requirements

The scheduled time of 450 hours per team member to be spent on this course is generally considered to be a planning target requirement. During the trimester each team member should be allocating at least 31 hours a week to project work. Each team member is required to account for this time by way of a written document or some other recording process. The project team and each student should plan and agree their work plan in advance and review their progress weekly.

Roughly estimated hours (per person):

Briefing and Bids 7 hours (usually prior to trimester)

Prepare Proposal 25 hours

Conduct Project 337 hours

Project Admin 40 hours (logs, diaries, time cards, meetings, admin)

Academic Write-up 25 hours

Prepare Presentation 15 hours

Interview 1 hour

**TOTAL 450 hours**

This is just a guideline as not all students will be involved in all activities to the same extent. By academic hand-in, the student should have recorded around 434 hours.

### Project Timesheets

In industry they are used to invoice clients and to estimate and track the project’s time, cost and resources (Triple Constraints).

For our purposes the timesheets are used to capture how the resources are spent and, using them, to update the project plan. The timesheet will be a record of daily activities and the time spent on those activities. Members of the project team will produce their own individual timesheet, and will be able to report current cumulated hours spent to date.

The reasons for completing timesheets can be summarised as follows:

1. It is necessary to know which individual has been responsible for what part of the project. The project plan will have objectives associated with individual team members, the timesheet will allow the responsibilities and effort to be correctly tracked.
2. Your project has a required number of hours. Some project teams exceed this guideline and by a large amount on some projects. The timesheet will allow WelTec to consider improvements to the running of the project course.
3. The timesheet is used to update the project plan and if done frequently enough is an early warning of lack of resource, or highlights that an activity is being carried out that has not been planned for.
4. It will give the team an indication of how good or otherwise is their skill in estimating resources and time to complete specific tasks or activities.

An example of a layout of a timesheet follows. Your team may decide to create their own template to maintain consistency with the rest of their project’s documentation or methodology tool chains.

Please record all hours against an actual project task title only once these are available. Other commentary could be amended here, but are probably better added to the project diary, for subsequent inclusion/consideration in a progress report.

### Sample Timesheet

Time recorded for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Name and Project Name)

Week Sunday, 9 - Saturday, 15 July 2009

|  |  |  |  |
| --- | --- | --- | --- |
| Day | Activity (Project activity code) | Period | Hours |
| Sunday |  |  |  |
| Monday | Collected Func. Spec. |  | 0 |
| Tuesday | Review Spec  Team Meeting |  | 1.75  1 |
| Wednesday | Review Spec |  | 1.25 |
| Thursday | Review Spec |  | 0.5 |
| Friday | Review Spec |  | 2.0 |
|  |  |  | Total: 6.5 |

Week Sunday, 16 - Saturday, 22 July 2009

|  |  |  |  |
| --- | --- | --- | --- |
| Day | Activity (Project activity code) | Period | Hours |
| Sunday |  |  |  |
| Monday | Meeting: review spec and outline testing | 14:00 – 16:00 | 2.0 |
| Tuesday | Test planning | 09:00 - 17:00 | 7.5 |
| Wednesday | Test plan – Cat. A tests | 09:00 - 17:00 | 7.5 |
| Thursday | GUI review  Advisor milestone mtg. | 09:00 - 17:00 | 5.5  2.0 |
| Friday | B/H |  |  |
|  |  |  | Total: 24.5 |

Running Total: 31 hrs

#### False Reporting

Falsifying timecard records is sufficient to warrant the failure of the project on ethical grounds. Whilst we do not expect high quality or volume work at all times, there should still be a substantial body of work to represent the time claimed, even if that work ended-up not being useable. Record and report all your time, allocate it properly to project tasks, and be aware that we expect demonstrable work product to fairly reflect that time.

#### Inadequate Time

The completion of 450 hours overall is a stated goal, and it would be unfair if teams doing less time were not penalised. However, meeting the time goal exactly is also highly unlikely. The assessment panel typically regard a margin of ±5% to ±10% to be realistic, depending on any external extenuating factors. Significant external factors may qualify the student to submit a low-hour project without penalty, or be offered an extension, at the discretion of the Head of School, determined **prior to submission**. Apply to the project co-ordinator well before the academic hand-in.

Low hours of work may be recognised in a number of ways depending on severity:

* Lower project management mark
* A percentage of the overall park is determined, pro-rata.
* The project Fails due to unacceptable quantity.

#### Excessive Time

A problem in previous years has been some students spending far in excess of the hours recommended for the project. In most cases this was due to bad planning, poor estimation methods, and concealed by poor monitoring practices and noble self-sacrificial posturing. Should you identify that the project effort requirement will over-run, then it is expected that the team will instigate suitable project management practices to get the project resource requirements under control without expending excessive effort hours. These should be discussed with your Advisor, possibly the Project Co-ordinator, possibly the Client, and clearly documented in your Project documentation. There are some situations where excess hours are the only viable option, but discuss it first. You will usually have to reduce project scope.

The inability to contain or recover from this situation is a sign of poor project management skills and will be reflected in the final assessment mark allocations.

### Project Diary

The Project Diary is usually a shared document recording events in the project. It is compiled on a day to day basis as needed and simply records events affecting the project such as completion of tasks, meetings, correspondence arrived, systems errors, emerging project issues. This will be a recording tool for the progress reports. This information will be critical when compiling progress reports, the final project reports, providing an audit trail, and as evidence of activity of the students and clients. It is not directly assessed unless there are major issues arising out of the assessment process. Do not integrate it with other logs or timecards.

### Individual Log

The Individual Log is usually a hand-written collection of your reflections and experiences relating to any aspect of the project, recorded frequently during the project, at least daily if possible. (People who are new to Project work complete individual logs so that they can look back at them to learn what/where their own stress points and motivational points were so they can better manage similar future projects.)

For this project, this Log is a critical data collection tool to help you complete the Individual Project Report at the end, and provides an evidential trail of your engagement during the project in the project process and team environment. It is not normally read by the other team members. It is not directly assessed unless there are major issues arising out of the assessment process. Keep it separate to all other logs and diaries.

Some questions may help you to surface suitable observations for the Log. These are:

* What did you learn today?
* What areas/tasks/aspects did you find the most enjoyable/frustrating/difficult today? Any idea why?
* What is your energy level like today? Stressed? What about others?
* What reactions did you have to other’s behaviours? How have they reacted to you?
* If you’ve tried out some technique to address above issues, how did it go?

I suggest that you head-up the Log pages with these conversation starters.

## Project Equipment Requirements

The project team may, during the course of analysis, discover the need for particular resources – meeting space, storage, equipment, development software, internet resources, etc. In every instance these should first be obtained through the client. Failing that, you may approach the Project Co-ordinator and request resources beyond that already provided to the students (standard computing lab access, and standard software etc), providing your detailed requirements and justifications. You will need to send an email with the above information, and if requesting printing or internet funds include all student login IDs.

Please note that WelTec has no obligation to provide this. Rooms, modern equipment, certain software packages and the like may not be available, or in such short supply that they are rationed at the discretion of the Project Co-ordinator. In many instances the student may be obliged to seek other solutions to get around resource constraints – this cannot be used as an excuse; it is just a practical reality.

Where licenses permit, WelTec may loan students development software for use on private equipment, provided the student agrees to remove the software at the completion of the project.

It is forbidden for any student to attach computing equipment to the WelTec production network without the express permission of the Project Co-ordinator for every instance. The use of ‘foreign’ servers on the network may disrupt DHCP, DNS, time synchronisation etc with disastrous consequences. Equipment may be attached to the BLabs network directly or wirelessly. If in doubt, contact Jeff Echano for help. In many cases, software will be used through virtualised facilities, such as VMWare

## Progress monitoring

### Recording

The Advisor will review the minutes of the meetings (that your team wrote) and write the Advisor report at the completion of the project. The project team needs to accumulate their own records and it may be a wise decision if the format of these records were agreed with the Advisor. The Advisor will require all meeting minutes and agendas in electronic or paper form.

### Team Meetings

There are a number of other team administration activities not of direct relevance to the Advisor. The team should meet on a regular basis to review the administration and direction of the project. I recommend weekly, a few days before the Advisor or Skills Workshop meetings. Some methodologies and practices may break this up into a number of other events, but please ensure that all the following topics are reviewed weekly at least. Teams of 1 member should still set aside administration time and go through the same procedure. A standing agenda for these meetings will help to keep them on-track and low maintenance. If this meeting is documented during the meeting, 30 minutes a week is usually sufficient. A suggested standing agenda (which means the same agenda every time….) follows:

1. Are all Individual Logs up to date?
2. Are all timecards up to date: Feed task progress, completion hours and dates to project plan.
3. Feedback information to complete the Project Diary
4. Are all administrative duties done (e.g. backups)
5. Discuss issues affecting progress
6. Allocate work for next period
7. Set agendas for next Advisor and client meetings.
8. Sign-off minutes taken in the meeting.

We strongly recommend using a Project Progress Report template with a few extra activities on it, as both the agenda, and the form to capture the minutes. A sample template is provided “typical student progress report.doc”. These write-ups are **shared with the Advisor**. One report per team, per week (though if you are using Scrum, maybe one at the end of every sprint).

### Deadline Extensions

During the project a number of deadlines may slip. Deadlines can slip from many causes, and it is just an indication that more management is needed. Through the reporting processes the team should be anticipating these, and managing the client’s and advisor’s expectation by re-planning the project and informing them of the new proposed deadlines, though this will often include some sort of negotiation around task prioritisation and formal change control.

Final submission dates are fixed. As in all courses, there is a possibility of an extension being granted allowing the student to complete outstanding work. Any work beyond the course completion date must be approved by the Associate Head of School, and will not attract Student Living Allowances support (if that was being used). However, due to the nature of the project course, reasons for this permission to be granted are limited to those beyond the reasonable expectation that students may solve, and almost always involve issues arising from other parties. With the assessment focus on process, not product, the assessment can fairly accommodate many complications in a project without extensions.

Typical reasons to support an application for extension that are NOT appropriate:

* The students have not completed enough hours or quantity of work, where there was no significant external factor preventing those hours (students are expected to manage their time and plan accordingly).
* The departure or non-performance of team members (this can be managed and re-planned except in extreme circumstances).

Typical reasons to support an application for extension that are appropriate:

* Significant periods of illness where there has not been enough time to make up lost productivity (medical certificates and other proofs required)
* The project is held up waiting for other parties to supply critical elements or materials AND all other alternatives have been exhausted (this includes accelerating work items to stay productive, using place-holder materials, employing work-arounds etc).
* Late commencement of a project due to client demands.

Please apply for any extensions through a formal email to the Project Coordinator that explains your case. This must be completed prior to academic hand-in deadlines.

## Project Audits

Every project team will be audited at least twice. The first is during weeks 5-6 (or earlier if possible), the second 2 weeks later. Students must book the audit with the auditor. First audits generally require at least an hour, second audits need 30 minutes.

For the purposes of the audit process, it will be assumed that the project started on the project ‘Agreed’ start date (usually the start of trimester).

You should not need to produce any special documents for the audit. This audit will examine the processes you are using to manage your project. We are interested in the "paper trail" of your project. If you arrive with a box full of second-hand agendas, minutes, timesheets, notes, sketches, drafts, etc. (working documents), this will be good. If you have a laptop with access to the Blabs network, this will help. This audit does not directly address project content or team issues.

### What the auditor will ask (from a risk-management perspective):

* How many Advisor meetings have taken place? Were they effective?
* Is there an agenda for each meeting and was it available prior to the meeting?
* How was the meeting minuted and when (during the meeting or from memory after the meeting)?
* How long after the meeting before the minutes were available? When were they reviewed?
* How many client meetings have taken place?
* What documentary evidence is there? (Agendas, Minutes, Documents, Specifications, etc.)
* What evidence is there of the team meetings or interactions?
* How are timecards, diaries and logs being managed?
* How is time being managed? Are you on track?
* Are there any drafts or working copies of requirements, scopes, etc leading to the proposal? How are these being managed?
* How are your paper and electronic documents being managed? What backup systems are being used?
* How have the responsibilities been apportioned and has the effort expended been recorded?
* How is the team progressing against their original and current plan? What is being done to ensure the plan is achievable?

A successful audit in no way guarantees a successful project, but will highlight areas of project management performance that require attention and suggest remedial action. The 2 audits attract 5% of the marks each, the first seeking workable management systems with only trivial corrections required. The second audit focuses on achieving corrections to previous issues, and maintenance of good practices. Audits address issues from a risk management perspective, so there is no special solution being sought, just safe and workable practices. Consider the process described in the guidelines as an initial working set.

### Support

Being cognisant of the situation in some single person projects, all teams are invited to have the Advisor and either client, colleague, relative, friend, or devil’s advocate present during the audit as a support person. Please inform the project co-ordinator if you wish to pursue this option.

# Project-end procedures

The projects are to be completed and handed over to the client as soon as possible, before the end of trimester. Give them everything you said you would in the proposal i.e. the stated deliverables, and everything needed for the future support and development of the project product. Same goes for the client-less projects, this is really all you completed in the project, and everything needed for the next developers to continue. On the academic handover deadline submit this material (printed nicely), the signed Proposal, Project Closeout Report, Project Individual Report (one each, all printed nicely), and all your supporting materials well organised, including a digital source. Projects will be assessed during Examination Week and will include a review by the client (if you have one), comments from the Advisor, and an assessment panel made up of internal staff and possibly, external IT professionals.

## Client review

The Student Team will ask the client to discuss and record their evaluation of the project team's performance on the appropriate client evaluation feedback form (provided on the S: drive and Moodle site). The objective is to determine the areas that were performed well, which were inadequate, the level of self-management, problem solving and people communications skills displayed. An important objective is to explicitly consider and decide on any allowances which should be made for problems and difficulties which could not reasonably be attributed to the project team, and to record any exceptional performance which was achieved. The client will provide a mark. This mark may be reviewed by the assessment panel if it is incongruous with the client comments. Client-less projects will generally disregard this mark, and adjust the overall maximum mark accordingly.

## Project Review by Advisor

The Advisor's view of actual team project management will be independently provided to the assessment panel and will examine issues such as:

* Quality of project planning, checking and modification
* Organisation of tasks within the project team
* Communication and teamwork
* Dealing with problems
* Use of Institute support and resources
* Individual student contributions

## Project Documentation

Each project will have its own needs for producing its project documentation set. This will depend on the nature of the project process, methodologies, product, client requirements etc. The distribution of the project documentation items into individual bound documents is at the discretion of the team, though sensible and typical conventions are expected to be used. A typical document layout follows.

The guideline is, if the document content is yours then print the document. Any documentation that is generated by software tools, source code and any copious amounts of material that is of a supportive nature should be filed electronically, and even then the electronic copy should be edited to remove duplications and other extraneous matter. There will be exceptions to this guideline, use your common sense.

Final deliverable documents (Client and academic) must be printed, and may be bound. Some document binding can be done through the Student’s Association. WelTec may offer a document binding service but with limitations. See your project co-ordinator. Other process documentation is best structured into large folders – use dividers and indexes to help to present this well. This is best structured in a way that mirrors your methodology.

The project teams will often be allowed a free choice of the available slots for Team Interview and Presentation on a ‘first come first served’ basis. To book a slot the project teams must submit the team’s complete and final documentation.

All of the following items are expected in your documentation set in some form, but several are mandatory and included for the purposes of WelTec assessment. These documents are underlined.

The authorship of all material, and referencing for all sources used in its production, must be clearly stated on every document. Documents from other sources, used as supporting material or partial replacements for required documents are allowable if they are:

* Clearly attributed to their source
* Supplemented by value-added material that aligns them to the Client or project needs

Note that if you present code or images etc from another source that you have modified, your modifications should be explicitly highlighted. It is NEVER enough just to mention somewhere that there are other sources.

### Technical Documents

As a minimum supply one hard copy for assessment, parts of which could be returned for handing over to the client, and one electronic copy for retention by WelTec.

**Examples** of documents considered to be “technical” are given below:

* Project Proposal
* Project plan updates
* System Analysis
* System Design
* Implementation/Delivery Plan
* System Testing/Acceptance Document
* System Manual
* Support Document – normal operation and administration
* Maintenance Document – fault fixing, enhancements, change control
* Implementation Documentation – technical specifications of the environment, installation process, backup and recovery processes, build and test environment specifications etc.
* Program Code Documentation
* Training Manual/Guide
* User Manual/Guide

Note that as the assessment focuses on Process, that previous versions and intermediary documents arising from your methodology, even if handwritten or hand annotated, have value. Include these in some sort of folder system, and include an index so the assessment panel can interpret what they see, this index should also reference any electronic documentation. This is often best structured to represent the methodology of the project.

### Individual Project Report

Each student is to develop and submit an independent report of her/his own part in the project. In the Individual Project Report the student is to demonstrate their recognition and understanding of their project situation over and above the skills and techniques they have acquired. The individual log is a critical data collection tool for this report. The student is to review the project achievement but especially their own contribution and discuss at least these topics:

* Reflection on the project progress, management, people skills and other aspects
* Team relationships, and performance of other team members
* Recognition of learning achieved including practical experience, judgement critical ability, leadership experiences etc.
* Demonstrate the wider learning framework from the accumulated knowledge from all the degree courses.
* Conclusions on improved personal methods and behaviours, which the student would adopt with the benefit of this project experience.
* This should a large and insightful report, in keeping with the significant number of marks it represents. Allow 10-15 hours each to write this report.

### Project Management Report

The Project Management Report (also known as a Closeout Report) is essentially a summary of the highlights (and low points) of the life of the project, and a statistical summary of the project (labour planned versus actual, objective attained, etc). This includes a collected view of the project – a commentary on the issues faced, lessons learned about process, tools, environment, recommendations for future projects etc. This is used as a filter to view the final project numbers when planning future projects of a similar nature. Please refer to the Project Management textbook for help in generating this. There is only one of these needed for each project.

This should be accompanied by the project correspondence file (presented as-is).

Logs

* Individual Log - electronic or paper
* Project Diary - electronic or paper

### Supporting Material

* Advisor Meetings (Minutes and Agendas)
* Team Meetings (Minutes and Agendas)
* Client/Sponsor Meetings (Minutes and Agendas)
* Timesheets
* Original signed Proposal, and all change controls
* A CD or pen drive (containing everything electronic for the project, excluding presentation, not returned.)

We strongly suggest structuring this material and providing an index. For these materials where you do not already have a paper version DO NOT PRINT one – simply put it on the digital submission, and provide an index page in each section referring explicitly to the material that only appears electronically.

## Project Interview with the Assessment Panel

The Assessment Panel is constructed to be as impartial as possible, and will comprise three WelTec staff, and possibly external experts and/or moderators. By excluding the Advisor and the client, the panel members will have limited knowledge or preconceptions of their project and its environment. For this reason, the project documentation is to provide a complete coverage of the client, the organisation, the application as well as the project activity. The assessment is based on a review of the documentation, the Advisor report, the client evaluation the presentation project, and the team interview.

The Panel will interview each team to explore, verify and assess various facets of the documentation, project deliverables and team performance. Be warned that this will be an investigative and possibly confrontational interview, not a congratulatory exercise. This process is used to validate the mark allocations and clear any questions the panel may have from their reading of the project material. The students should expect to be challenged on issues like the following:

* Their personal understanding of the documentation, systems, design, methodology
* Sources and authorship of all material
* Alternatives considered, and how they would have affected their design
* Their understanding of their project management process
* Issues about decisions made
* Use of resources
* Lessons they have learned

The student is advised to bring all other project-related material they did not submit as it may provide some resolution or proof in the interview process, but the panel are not obliged to assess that material. The interview may last up to 45 minutes. Provisional marks are generally distributed shortly after its conclusion. Students are rarely asked to ‘present’ their project in this interview.

## Project Presentation

The Presentation is intended to be used as a promotional vehicle for the students and WelTec with industry/employers and to a lesser extent the general public.

The student team is required to construct a presentation **suitable for public display** utilising a number of mediums. WelTec may host an evening session with invited industry representatives to present the projects, which the students are invited to attend to answer questions about their projects, and to meet potential employers. Top project teams may be asked to formally present their projects at the session. These presentations may be included on WelTec websites or displayed at public events and conferences.

### Presentation Media

There are 2 presentation items required.

1. A one-page project summary, produced according to the standard of the previous word (available online and on the network).
2. A presentation via a video clip or stand-alone web site.

**Item 1 is due before Academic handover**, and should be sent by email to Mariki for editing. It will be included in the summary booklet of WelTec projects for the year.

**Item 2 is due the day before the panel interview** – find Robert or Glenda and hand it in on a pen drive (which you should get back).

The Presentation should be primarily based around a series of web pages and/or a video clip. Teams of 1 or 2 persons are expected to only produce a video OR a web system, larger teams will be expected to either show a substantial effort in one of the main options, or to produce both video and web outputs. Expected effort is 15 hours per student.

The Web option should produce a series of web pages that:

* Contain standalone content (may be linked to other live sites but the presentation should NOT rely on this aspect)
* May NOT use streaming media, or very large file sizes (may be viewed comfortably though a modern connection).
* Should only take about 5 minutes to view the entire site, so cannot have large reports as critical content.
* The entire site is zipped and prepared for easy insertion to a WelTec web server.

The video option should produce a short video clip in a popular web-ready format (.mp4 or .avi preferred). The video should be no longer than three minutes; the recommended duration is 30 seconds per student in the team. Each student does NOT have to have equal screen time, or any screen time at all, but all must be represented at least in a voice-over. Minimum duration 30 seconds (1-2 team members), or one minute (3 or more team members).

The actual public presentation evening may be supplemented by other reports, materials, or artefacts (devices) used by, or generated by, the project. These additional materials are generally retained by the students or project client unless they are an integral and substantive part of the presentation.

## Presentation Guidelines

### Suggested Content

The presentation material should endeavour to address all/some of the following as appropriate to the individual project, focussing on your real achievements:

* General information about the project (aim, personnel, client, environment/context)
* Challenges of the project (relating to personnel, process, market, development, training, integration etc)
* Schematic of the product design
* Samples of the implementation
* Current status the of the project product
* Future plans for the product

The Project team should keep firmly in mind that the audience for this material is:

* The project client
* Potential employers
* Industry representatives
* Public figures (such as local government)
* Family, friends
* Current WelTec students

and, to a lesser extent, members of the public and potential WelTec students.

The following content is required or recommended as stated. However, the implementation of this is largely open to the student team and may include a graphical presentation and/or a personal narrative. A newsreader style presentation is suggested, but other formats will suffice. Whilst a professional-looking appearance is recommended as your default, more creative presentations can also be very effective if you are inclined to create them. See the previous and current student presentations on S:\Courses\IT7351 - Project\Project Videos

The production of this video is expected to use around 15 hours of work per person, and the assessment expectations will reflect this level of work.

The first stage is to produce a script and a storyboard. These must be approved by the Client (or Advisor if there is no client). The Client will determine if their name and/or company name may be used, and must approve any images of them you intend to use. Approval must be in writing (the form page follows), and a full model release must be completed for any persons depicted in the images (photographic release follows).

The Advisor may confirm the presentation you proposed is likely to meet approval of the assessment panel.

The video must feature the following elements (in no particular order):

1. WelTec identity elements – as supplied (logos etc.)
2. Student names
3. Advisor name
4. Client company and contact name (ONLY if permitted by the client)
5. Year of project
6. Title of project
7. Aim or goal of project
8. Each team member personally presenting something (visually and/or audibly)

The video may also feature the following elements:

1. Images of the team whilst undertaking the project (genuine or staged). Be enthusiastic, Smile.
2. Elements of fun and/or parody
3. You may choose another style of presentation – maybe as a training video, but note this has more limited appeal.

The video must not contain the following elements:

1. Copyrighted material (without an appropriate release approval)
2. Profanity, or such language or behaviour likely to bring yourselves, WelTec or the client into disrepute. Please consider elements of organisation reputation, the people, the services and products in this consideration.
3. Release of confidential information

Avoid using copyright music as in New Zealand copyright Fair Dealing is even tougher than Fair Use. Try to use only open source music and images if you need it. Freeplaymusic.com is a good resource in this regard and there are others.

You could do a weather-forecaster style presentation, narrated animation, or whatever as long as the compulsory data comes with it – even if it is just in an opening and closing scene.

Each presentation Video, or Web system (and possibly Artefact) will be retained by WelTec and may be displayed on subsequent occasions or used for promotional purposes. Releases may be made directly to the media, directly to primary and secondary audiences (employers in particular), via a public-facing internet site, social media services (such as Facebook), You Tube, or equivalent.

If possible, bring a device capable of playing the movie into the interview.

### Confidentiality and Libel

All material presented should comply with your client’s needs for confidentiality. You are required to show this presentation to the project client for approval in this matter, or at least gain approval for your concepts/storyboard design.

As these videos and web pages will be in public view you should be very circumspect in describing:

* Issues experienced with the client
* Criticism of the client’s previous and/or resulting business systems
* Comments on personalities and/or skills of anyone involved
* Comments on client products
* Any client system that may be considered by the client as Intellectual Property, pending patents, or that they are unwilling to publicise.

The important aspect is not to erode the confidence of any potential customers of the client by your descriptions or inferences. The detailed critique and analysis of these issues are presented in your various summary reports, which should NOT be included in any of your presentation materials, but may be discussed in your project documentation submission and panel interview.

For more commercially sensitive projects, or those that had a more disastrous outcome, the students should consider concealing the identity of the client completely. In this instance the previous content restrictions do not apply (they are probably a major part of the challenge of the project) however the team should be very careful to exclude or transform any detail that might allow the identity of the client to be deduced. Any data used in testing or presentations should be either specially created, any thoroughly anonymised. If there are any issues then the project team must contact the project co-ordinator.

### Submission Deadline and Standards

The presentation submission is worth 5% of the total grade, and will be assessed PRIOR to the panel interview. The presentation must be effective without the student present. Presentations failing to reach a passing standard will not be displayed in the Public presentation. Corrective action may be recommended to enable the presentation to reach an acceptable standard, and thus admitted to the public presentation, but this will not improve the mark assessment. Presentations that contravene the Confidentiality guidelines must be corrected before display, but may be assessed marks on the material presented. The evening presentation session is expected to be sometime in November.

The photo permission form on the network drive and moodle is for anyone appearing in the video clip or on the website.

**Indicative Assessment Schedule**

The following is the assessment marking schedule that will be used for a typical systems design and implementation project. For projects that vary substantially from this – by way of the nature of the project, methodology, or mitigating circumstances, a new weighting may be decided on during its assessment. This revised schedule will not be available in advance as its suitability will be determined during the assessment process. Should a project team wish to suggest an alternative assessment weighting they should seek support from their Advisor, and submit the proposed schedule to the project co-ordinator no later than the completion of their system design. The Assessors do not guarantee to use the new schedule, but it will be seriously considered.

Late submissions of a revised schedule will be disregarded – writing the marking schedule after one has written the documentation defeats the purpose of design and planning.

The ‘standard’ marking assessment schedule for projects are:

|  |  |  |
| --- | --- | --- |
| **Assessment Item** | **Weighting** | **Comments/Notes** |
| **System Proposal ^** | 10% |  |
| **Audits Reviews ^** | 10% |  |
| **Development** |  |  |
| *Implementation of systems methodology* | 10% |  |
| *Analysis and Design* | 10% |  |
| *Testing* | 5% |  |
| *Development practices* | 15% |  |
| **Delivery** |  |  |
| *Training* | 5% |  |
| *Implementation support* | 5% |  |
| **Self Assessment** |  |  |
| *Project Management ^* | 5% |  |
| *Individual Report ^* | 10% |  |
| *Presentation ^* | 5% |  |
| **Client Evaluation** | 10% |  |
| All milestones approved by Advisor | Pass / Fail |  |
| Required deliverables (^) present | Pass / Fail |  |
| Acceptable quality / quantity / ethical conduct | Pass / Fail |  |
|  | 100 |  |

^ Required deliverables

Note that failure to manage milestones effectively and failure to contain project over-runs will be explicitly and heavily penalised in the Project Management mark or by a Fail result in item 7.

The ‘Pass / Fail’ criteria are considered terms. It is possible to Fail the assessment where the mark is 50% or better if terms criteria are not met.

The project is assessed by the three staff on the assessment panel. In the case of disagreement among the assessors, the Project Co-ordinator (or their delegate) will carry the vote.

### Presentation Marking Schedule

The marking criteria focuses primarily on the presentation’s suitability for the specified audience (described previously) and secondarily on the quality and choice of content (refer to the recommended list). The main marks are therefore for visual appeal, appropriate language, ease of use, and structure that addresses the interests of the intended audience and holds their attention. In this manner the presentation is more akin to an Executive Summary in its goals and assessment. The secondary marks allocation addresses the quality of how the content encapsulates or represents the material in the Suggested Content (those sections appropriate to the Project) and will be viewed in terms of clarity of issues and descriptions, coverage of the project experience, and more traditional academic standards of the content.

#### Engagement of Audience 0-3

**Quality of content 0-2**

**Confidentiality terms Pass / Fail**

**Effort Assessment 0-100%**

Presentations deemed to be inadequate size will have their basic marks reduced pro rata. That is, for 75% of the perceived total effort expected (15 hours per team member of effective effort) the final marks will be 75% of the initial assessment.

## Project Success

Please note that the success of a project deliverable, outcome or satisfied customer is not in itself sufficient cause to pass this course. Likewise a failed project deliverable may still attain high marks. The Assessors are more concerned about the processes used, the skills employed, and the avenues explored. We do want all projects deliverables to be successful, or at least all the clients to be satisfied with the outcome, in order to encourage the industry to continue to offer us student projects.

### Project Complexity

Highly complex or challenging projects, especially those requiring additional training to learn new products, will **not necessarily attain higher marks**. In these situations some allowances may be made in mark allocation or the assessment distribution.

Simpler projects, employing skills already taught, in environments with little challenge, will attain higher marks by the excellence of their documentation, process and product. This is often reflected in thorough testing.

### Project Size

If, at any time, the project looks like being inadequate in size, the students must consult with their Advisor and Project Co-ordinator. Projects that are too small, too easy, and/or time padded out with fill-in activities are all criteria for failing projects.

## If you receive a Fail result

A student project, or individual student, that receives a result of “Fail” from the assessment panel – be it for <50% marks or failure of terms requirements – they may be invited by the Panel to resubmit particular items in question within a deadline, normally 1 week from the panel interview. They will be reassessed within one week of resubmission, and the revised mark posted. Typical criteria for resubmission would include situations where the documentation does not reflect the high quality of activities undertaken, where small but significant faults affect product quality, and where the quantity of re-work needed is manageable. This is not offered at the student’s discretion.

By this process if the marks allocated are below 50% they can only be raised to 50% overall. If failed terms requirements are satisfied then the existing marks will stand. For example a project attracting a ‘B’ result but failing a terms criteria will get a ‘B’ if the terms criteria is satisfied within the resubmission week.

### Review Process

No further review of marks will be offered.

As with all assessments student can follow the assessment challenge and grievance procedures as summarised in the WelTec regulations.

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# Applied Research Projects

Students who wish to conduct applied research as their student project will need to refer to the Appendix file (Student Briefing Appendix Applied Research Projects) for details.

Good luck.

# IT7351 - Quick Summary of Main Points

Note you have to meet all the requirements – these are just the main ones. The guidelines contain a lot more detail on each topic.

|  |  |
| --- | --- |
| **General Guide – timeframes may change** | **Schedule guide** |
| 1. Refer to the guidelines frequently – there is a lot of good advice and ideas. |  |
| 1. To get an interview with Robert book a time at [www.sutclirl.youcanbook.me](http://www.sutclirl.youcanbook.me)   Glenda email: [glenda.shaw@Welc.ac.nz](mailto:glenda.shaw@Welc.ac.nz) |  |
| 1. Form your teams, bid for a project, select an advisor, get underway – FAST. | Week 1-2 |
| 1. Identify 4+ milestones in the plan (proposal, design + …) for advisor signoff. |  |
| 1. Select a methodology and use it. Build it into your plan. Document the steps as you go – particularly analysis, design and testing. |  |
| 1. Proposal due ASAP, before week 3. It must go to Robert or Glenda before the client, you must book a 1 hour interview with Robert/Glenda for this. | Week 2-3 |
| 1. You must book a 1 hour audit in week 5 or 6, and further audits as directed. | Week 5-6 |
| 1. Have a regular advisor meeting – present all issues there. | Throughout course |
| 1. Attend all fortnightly Skills Workshops (if offered). | Throughout course |
| 1. Keep agendas, minutes, and signoff minutes from ALL meetings. Manage these professionally. |  |
| 1. The final decision from team/advisor meetings is YOURS – document the advice trail and make such decisions clear. |  |
| 1. Keep separate project logs, individual logs and timesheets. |  |
| 1. Make updating and checking logs etc. and producing a project progress report part of a regular team meeting. Give to your Advisor. |  |
| 1. Actively manage your progress towards the scope and the 450 hours available, and track your hours in the timecard. |  |
| 1. Actively manage your relationship with your client, to a level of contact that they are happy to provide. | Throughout course |
| 1. Consider proposing your own marking schedule at the end of your analysis/detailed planning phase. |  |
| 1. The authorship of all material, at a detailed level, must be clear. Under NO CIRCUMSTANCES may you use another student’s work as a template. |  |
| 1. Keep everything! You WILL be audited! (Audit 2) | Week 8-9 |
| 1. Submit work to the client at least one week before academic hand-in. Clients are usually slow to test or evaluate your work, progressive hand-in is better. Give them the Client Evaluation brief as well (see S: drive) | Week 12-13  **Final Client Milestone** |
| 1. Hand-in + 1-page summary is due before study week (see page 7 for dates). Your presentation is submitted the day before the interview, work on it during study and exam week. | Exam weeks |
| 1. The Interview is in the second examination week. | Exam weeks |
| 1. A public presentation evening may be held a few weeks after the course. | Exam weeks |