CS22120/CC22120 SOFTWARE ENGINEERING
GROUP PROJECT INTRODUCTION AND GUIDELINES
2018

Introduction

The purpose of the group project is to give you experience of working as a team to take a software project right through from inception to acceptance. The project is not primarily concerned with producing clever technical solutions to problems but it does require you to produce a high quality software 'product' that is specified, designed, implemented, tested and documented to professional standards. The emphasis throughout is on team effort, project management, quality management and adherence to good software engineering practice.

Project Teams / Role of the Module Leader

Project teams of 7 or 8 will be arranged at the start of the module. Chris Price is the Client for each project team. The Client will provide a Requirements Specification for a piece of software to be delivered.

The member of staff in charge of your weekly tutorial meeting will act as Project Manager to your group. The Project Manager's role will be to steer the group as a higher level manager would in industry, discussing progress, making sure you don't go off the rails, etc. They are not expected to make technical input to the project.

If you have a good reason for missing a meeting, then you should inform your Project team of it, *before* the meeting unless that is impossible. Repeated absence or unaccounted absence from meetings will be taken as evidence of lack of participation in the group project and will severely affect your personal mark for the group project.

Commitment

As a rough guide, each student should devote a total of 140 hours to the Group Project (not including time in tutorials). Students are often tempted to put in significantly more than this. In industry, over-running on a project loses money. Here, devoting too much time to the group project will affect your other work, so groups in which several individuals have substantially exceeded the 140 hour guideline are usually penalised under the *Organisation and Management* assessment heading.

You are each required to keep a project blog which records what you did and how long you spent on the project. This should be updated before each tutorial meeting so that the project team know what is happening. A link to your project blog should be submitted with the other documentation at the end of the project, and marks are given for how well you have kept track of what you did on the project.

Please do not be tempted to be 'inaccurate' in keeping your project diary - it is in your own interests to limit the total time you spend to the suggested figure. However, you also should aim to spend around a day and a half each week on the project, and you should be able to show progress for your effort each week.

Project Management and Quality Management

You will rely very much on the following documents that are available on line, and will be explained further in lectures. They provide the basis of management and quality plans for the project, and specify the required deliverables. Of these, the Quality Assurance Plan should be read first and by everybody in your group:

QA Document SE.QA.01 - Quality Assurance Plan.

Covers overall QA activities and procedures, referring to other QA documents for details.

QA Document SE.QA.02 - General Documentation Standards.

Covers layout and essential information content of minutes, documents, and diagrams, and specifies procedures for production of same.

QA Document SE.QA.03 - Project Management Standards.

Covers organisational roles, task categories and naming, charting techniques, project plan, reviews, milestones, and deliverables.

QA Document SE.QA.04 - Interface Description Standards.

This describes how you will document your design for the user interface of your

QA Document SE.QA.05 - Design Specification Standards.

Covers format and contents of the design specification for the project. Different types of project may need to adapt what is included.

QA Document SE.QA.06 - Test Procedure Standards.

Covers format and contents of the test plans and the test specification, and the procedures for the execution of testing.

QA Document SE.QA.07 - Review Standards.

Covers procedures to be followed in the conduct of formal reviews.

QA Document SE.QA.08 - Operating Procedures and Configuration Management Standards.

Covers procedures, tools and techniques to be used in configuration management, and the procedures for problem reporting and corrective action.

QA Document SE.QA.09 - Java Coding Standards.

Covers standards to which Java source code must be produced.

QA Document SE.QA.10 - Producing a Final Report.

Covers what should be handed in at the end of the project.

Readable and printable versions of the listed documents (in PDF format) are available in the Group Project folder on Blackboard, along with an online copy of this document.

It is vital that you read and follow the documents relevant to your role in the group project (e.g. SE.QA.06 if you are on the Testing team). However, it is advisable to read through all of the documents at least once, as they contain material that will be useful in understanding the rest of the course.

Document Production

The main documents you create should be produced to a professional standard, in terms of both content and appearance. A significant portion of the assessment is derived from the quality of documentation, and students should therefore pay close attention to the QA procedures for documentation. Standard WORD and LaTeX document templates are provided on the Web site.

Project Timetable

The project has two phases. Firstly, you define the product, and design it, making sure your team knows enough to build it. There are a number of deliverables during this phase, and you need to develop most of the code that you will need. The second phase is the final week of the semester, when you will integrate all of the code, and deliver a completed product and documentation.

The deliverables in each phase MUST be met with whatever you have completed at that point.

Phase 1 - Design and feasibility phase of project

This phase of the project will start immediately and go on until the end of week 10 of the semester. In this phase, you will plan how you will approach the problem, decide what your software will look like, identify challenges to your group's ability to build the software, assign duties to individuals, and arrange any meetings you need before the following week's tutorial. The person assigned to take minutes of each meeting should email them to group members and the tutor within 24 hours.

In the weekly tutorial, tasks will be assigned to each member of the group, and the following week, you will report in your blog how you approached the task you were given, and you will submit whatever you produced to the project's Git repository. This will enable the project group to be clear on what each member of the group has done. Lack of attendance at project meetings will seriously affect your ability to contribute to the group, and will be reflected in your mark (see next page for how this is dealt with).

By the end of the first phase, you will need to know how you are going to build and test the product, and what it will look like. You will have produced code for all of the difficult parts of the project, and you will have a plan for how you are going to test whether the final product does what the requirements specification says it should do. You will have an overall architectural design for how all of your test code fits together into a coherent, maintainable product, and clear descriptions of what the data structures in the product look like.

External deliverables at the end of the first phase are:

> User manual for the designed system. *This will be delivered at the end of week 3 of semester 2.*
> Test specification for the final system. *This will be delivered at the end of week 3 of semester 2.*
> Design specification for the final system. *This will be delivered at the end of week 8 but is large enough that you need to be making regular progress on it as a team.*

There are standards for each of these deliverables (see previous page) and the lectures will address both what the deliverables should look like and how to go about creating good versions of the deliverables.

Phase 2 - Integration and Testing

During Integration week (30th April-4th May this year), you will work full-time on the project (unless you have any lectures outside of the Computer Science department - you will still need to go to those lectures). You will build and test your finished product, and make final versions of your documentation. At the end of Integration week, you will hand over the completed product, along with final versions of all documents that need to be delivered (see SE.QA.10 for details) and the blogs for all team members.

Assessment

Projects will be assessed on the following basis:

Criterion	Value
Technical achievement	25%
Quality of product (e.g. robustness, reliability)	25%
Quality of project documentation	30%
Organisation and management of the group	10%
Personal reporting on project	10%

The emphasis of the group project is on team working and consequently all members of a group normally receive the same mark for the first four items listed above. Where there is evidence that a person has not carried out adequately the work allocated, or has otherwise failed to participate in the team then that person's marks may be reduced. Conversely, where one person makes an outstanding contribution that stimulates a struggling group so as to turn potential failure into success then that person's marks may be increased. The marks of the remainder of the group may be adjusted to compensate. Project leaders should note that where a person has done very little because he/she has not been given much to do, but has done consistently all that they were called upon to do, that person's mark will not be adjusted.

We have introduced a formal method of warning a student where their contribution and/or attendance has not been adequate. There is a three-stage process, where it will be possible for a student to move to have a more serious card rescinded by putting in a good effort from then on. Cards are awarded by the Project Manager in consultation with Chris Price, not by the team.

Yellow card	Student has not participated sufficiently, or has failed to provide promised contributions without good reason.	Penalty: 20% less than rest of group in final mark
Orange Card	Student has received yellow card and has continued to default. This will result in an interview with Chris Price.	Penalty: 40% less than rest of group in final mark
Red Card	Student has not improved behaviour after interview with Chris Price	Penalty: Zero on group project.