## SOFT7003: Advanced Software Development 2020-21
## Courseworks 1 and 2:
## Manage, Design and Build a Software System

**Overview**

In these courseworks you must manage, design and build a software system for which there is currently a requirement for a start-up business (see the *Product specification for a start-up business* at the end of this document). These systems are implementations of live projects in an Agile Project Team. In Coursework 1 you must work individually on the initial stages of the project to produce the first set of deliverables. You must document the work individually. The documents produced will form key components to be used during the second coursework in which you must work as a group to complete the implementation.

**Learning Outcomes:**

On successful completion of this coursework students will be able to:

- Demonstrate an understanding and professional competency in software production principles and practice.
- Apply the processes and techniques necessary for the management and production of software projects taking into consideration customer feedback, development schedules and costs.
- Apply current software production research and development issues using appropriate and reliable information sources such as ACM, IEEE, Springer and Science Direct.
- Demonstrate proficiency in a range of modes of communication including presentations to groups, writing reports and writing technical documentation.
- Identify and mitigate risks, legal, social, environmental, professional and ethical issues relevant to research and problem solving in the domain.

**Coursework 1 (Individual work worth 40%)**

Each student within the group is required to work on one of the following components and then combine the work to form a report. The components for this include:

- Agile Product backlog and Sprint backlogs
- User stories
- Progress metrics
- Acceptance criteria and acceptance tests

Allocate an initial set of tasks to individual group members and start work in week 1. Students can work as a group but the work must be prepared individually then added to the report. Use the cover sheet to log how work is divided within the group. Start by setting up a google drive for your group's work, and invite your module leader (who will act as the Product Director) to join it. This will be checked regularly.

**Agile Product backlog and Sprint backlogs**
A prioritized features list, containing short descriptions of all functionality desired in the product, is required on a google drive. Provide this in the form of user stories. The entire team should agree how to divide the product backlog items into sprints. This agreement will define the sprint backlogs. The sprint backlogs will be checked regularly.

**User stories**
Provide informal, natural language descriptions of the features of your software system. These user stories should be written from the perspective of an end user or user of the system. The user stories will be assessed for their clarity, size, coherence, and acceptance criteria.

**Progress metrics**
Provide a set of story points or story count graphs for your software system, together with a set of completion predictions.

**Acceptance criteria and acceptance tests**
Produce **acceptance criteria and acceptance tests** (as deployable and executable code under source control) for each and every user story. In your startup system these tests should also collectively become a regression pack for future code changes.

**Sprint Reviews**
Groups are required give two 15-minutes presentations to present their proposal and progress to the Product Director. The Sprint Review should discuss what was planned and what was completed for each sprint (for the stakeholders). All members are expected to contribute. The performance of the group and of individuals within a group during these reviews will be incorporated in the review assessment.

**Participation**
The performance of individuals within a group during the coursework will be incorporated in the coursework assessment.

**Coursework 2 (Group work worth 60%)**
Coursework 2 requires you to work as a group to continue the development of the software system. The following sections are expected to be addressed and included in the final group report. The weighting for each component is given below.

**Updated Agile Product backlog and Sprint backlogs**
Deliver the finalised Product backlog together with the finalised set of Sprint backlogs.

**Updated User stories**
Deliver the finalised user stories. The user stories will be assessed for their clarity, size, coherence, and acceptance criteria.

**Fully commented source code**

A complete listing of all source, build, configuration and data files is required. Each file must be suitably commented.

**Test and evaluation results**
Screen shots, or similar, should be captured and annotated to record the testing (acceptance tests and unit tests) of each feature. This will demonstrate that the test plan has been carried out successfully. For the evaluation results it is suggested that feedback from one or more users from outside the group is recorded and included as evidence.

**Code reviews and analysis**
Provide documentation to show the artefacts produced during your code reviews and analysis, whether performed by over-the-shoulder review, email pass-around, pair programming or tool-assisted review.

**Sprint Reviews**
Groups are required give two 15-minutes presentations to demonstrate the work and the working software. Vivas may be held in week 12. All members are expected to be available to contribute. The performance of the group and of individuals within a group during these reviews will be incorporated in the assessment.

**Group Retrospectives**
Provide group reflections on what happened in each iteration and the agreed actions for improvement going forward. The retrospectives should consider how work was conducted - teamwork, communication, processes and procedures, team norms and behaviours, roles, etc.

**Individual Report**
The individual report should reflect on the group work from an individual perspective. Consider aspects of the groupwork and development project which worked well and aspects which did not. You can consider:
- The roles and contribution from each of the group members.
- How risks were mitigated
- How legal, social, environmental, professional, and ethical issues were addressed
- Whether sufficient research and investigation was done
- Whether sufficient analysis of user stories was done
- Whether appropriate development methods were used.
- Whether the features were fully implemented
- Whether the documentation was a good reflection of the work done
- Whether relevant professional issues were considered
- Whether skills and lessons were learned from the exercise

The report should be of approximately 1 page and can address your individual contribution, the contribution made by each of the group members and a personal critical reflection of the group-work in terms of effectiveness and coherence. You should aim to identify positive aspects and give suggestions of how any areas of weakness could be addressed.

**Participation**

The performance of individuals within a group during the coursework will be incorporated in the assessment.

**Marking Criteria**
The weighting for each component of coursework1 and 2 is given below.

| Coursework 1 | Max. Marks |
|---|---|
| Agile Product backlog and Sprint backlogs<br>User stories<br>Progress metrics<br>Acceptance criteria and acceptance tests | 20 |
| Sprint Review | 10 |
| Participation | 10 |
| TOTAL | 40 |
| Coursework 2 | Max. Marks |
| Updated Agile Product backlog and Sprint backlogs<br>Updated user stories<br>Fully commented source code<br>Test and evaluation results | 20 |
| Code reviews and analysis | 5 |
| Sprint Review | 10 |
| Group Retrospectives | 5 |
| Individual Report | 10 |
| Participation | 10 |
| TOTAL | 60 |

**Feedback**
The marks and feedback for Coursework 1 will be given by the end of week 8. Formative feedback will be available every week in the practical class on the coursework work completed so far. Feedback on sprint backlogs will be given weekly. The summative feedback for the final submission will be available by the end of week 14.

**Groupwork Policy**
**This coursework follows the Free Supervised Model with continuous assessment. For further information see:**
**https://docs.google.com/document/d/1YsCCmhLkBZgylbaUU5Ep1gjL0k V5g5k7FvfWZMY3BkA/edit#heading=h.lax46eogr37v**
**Consequently, weekly progress checks will be done during practicals. One of the first things you will need to do as a group is decide who does what. When you do this, bear in mind the marking scheme, and spread the workload evenly so that everyone is contributing work that will be worth a fair share of the total marks. Please be aware that you will not all receive the same marks, but marks will be awarded according to your contributions throughout the module.**
**You should also take care to balance the workload. Each group member must take responsibility for at least 2 tasks during courseworks 1 and 2 and carry them through the whole design and implementation process. It is important that the work is evenly split within the group.**

**Your total mark for this module will be the sum of your score for courseworks 1 and 2. To obtain a pass you must obtain at least 50% overall. To obtain a distinction you must obtain at least 70% overall.**

**Acceptance of module conditions**
Registration on this module means that you agree to the requirements, conditions and sanctions associated with the assignment.  The instructions are very detailed – read them carefully.

**Plagiarism warning**
The university regulations on plagiarism will be followed and students are advised to check on correct referencing procedures. Plagiarism is taken extremely seriously at Oxford Brookes and if you are at all unclear about what this is, you should consult our website: http://www.brookes.ac.uk/library/skill/plagiarism.html

**Turnitin checks**
Turnitin is a web-based tool that supports students in the development of good academic practice when preparing written work for assessment.  This text-matching tool allows academic staff to check students' work for improper use of sources or potential plagiarism by comparing it against continuously up-dated databases (including web-pages and student work).  Turnitin produces an 'Originality Report' for each submitted piece of work which indicates all the matches in the student assignment to the web-based sources on its database, and thus can provide academic staff with the opportunity to help students develop proper citation methods as well as to safeguard students' academic integrity.  Turnitin may be used as part of an investigation into an alleged case of plagiarism but its primary use is to support students' academic development and enhance good academic practice.
For more information on the use of Turnitin in the University see: http://www.brookes.ac.uk/services/upgrade/study-skills/turnitin.html

**Submission**
**Week 6: 5.3.2021 5pm submission of Coursework 1 on Moodle**
Coursework 1 should be no more than 4 pages for each student contribution. The combined report submission should be made by one of the group members. State on the coversheet which group members did each task (use student numbers not names). Immediate feedback on presentations will be given

**Week 7: 12.3.2021**
**Presentations: Sprint Review during practical session**

**Week 9: 26.3.2021**
**Presentations: Sprint Review during practical session**

**Week 12: 30.4.2021 5pm submission of complete project on Moodle**
**Product Review and Viva**.
Coursework 2 is expected to no more than 8 pages, excluding the individual reports.  Group coursework reports and pre-recorded video should be

uploaded to Moodle.  One combined report submission should be made by one of the group members. Please attach the coursework coversheet to the group report.

Individual report submissions and videos from each student are also required to be uploaded to Moodle.  Ensure that all work is clearly labelled with group number and student numbers.

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## Advanced Software Development 2020-21

### Product specification for a start-up business

| Title | Student Skills Platform. |
|---|---|
| Brief description | A platform for students to be able to offer skill services to small businesses and start-ups. |
| Estimated approximate duration | Ten weeks |
| Expected deliverables | An online marketplace where: <br> Students and small business and start-ups can register. <br> Create/update and delete their profile. <br> Star rating for reviews. <br> Online chat facility. <br> Students list their services and provide a short profile. <br> Small business and start-ups can list their requirements and provide a short profile. <br> Students who are interested in these services ask questions and if they are satisfied with answers, offer their skills. <br> Small business and start-up also ask questions and if they are satisfied with answers purchase them. |